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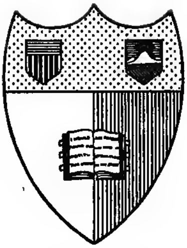

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The Port of New York Authority

REPORT

ON THE

Food Supply of the Port of New York District

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J. SPENCER SMITH, Vice-Chairman
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ALBANY
J. B. LYON COMPANY, PRINTERS
1922

THE PORT OF NEW YORK AUTHORITY

MR. EUGENIUS H. OUTERBRIDGE, *Chairman, The Port of New York Authority:*

DEAR SIR.— In the month of October, 1921, the Nation was threatened with an attempt to cause a total suspension of railroad transportation.

To meet the situation, which undoubtedly would have meant peril to health and life as well as economic disorder and loss within The Port of New York District, the Port Authority created an organization for coordinating and regulating all of the agencies of possible transportation, supply and demand.

One of the units of that organization was the Statistical Section, comprising a Commodities Committee made up of those trade groups dealing in the principal necessaries of life, and a Governmental Agencies Committee made up of agencies of the Nation, the States of New York and New Jersey and the City of New York, and a representative of Columbia University.

To the Statistical Section under the direction of the chief statistician of the Port Authority was delegated the function of gathering information of consumptive needs and possible sources of supply of foodstuffs and other necessaries. The Governmental Agencies Committee was assigned the work of making the required survey.

At the very outset of its activities that committee was brought face to face with the fact that there was immediately available practically no information as to consumptive needs, sources of supply, and supplies on hand within the Port District.

Fortunately, the threatened emergency was avoided. However, the organization had been perfected, and had begun to function when it became known that the emergency was no longer threatened. It had proceeded with its studies sufficiently far to bring about the realization of the desirability of a comprehensive survey of certain phases of the food problem of the Port

District; and although the emergency to cope with which the committee had been formed had passed, its membership recognized the unusual opportunity for making an important public contribution concerning the problem with which it was dealing and urged the Port Authority to continue the investigation. With this view the Commissioners agreed and arranged to provide the small amount of technical assistance necessary to enable the committee to continue its work.

As to the scope of the work it was decided:

1. To ascertain and report by principal commodities the average annual receipts of all foodstuffs in The Port of New York District.
2. To ascertain and report by principal commodities the main sources of supply on which the people of the Port District normally depend for their food.
3. To ascertain and report by principal commodity groups the quantity of foodstuffs being carried in both cold and dry storage within the Port District, as of November 21, 1921.
4. To conduct a scientific survey for the purpose of ascertaining the per capita consumption per annum of each of the principal food staples for the entire Port District.

The committee has completed its work and I present to you, herewith, its report.

For this very comprehensive study we are principally indebted to Mr. Herschel H. Jones, representing The New York State Department of Farms and Markets, who was kind enough to act as chairman of the committee.

We are also indebted to Messrs. William H. Stanton, Raymond L. Federson, and H. B. Knoop, representing The Bureau of Markets and Crop Estimate, United States Department of Agriculture.

Each member of the committee lent his full co-operation and gave unsparingly of his time and assistance in carrying forward the work to its completion.

The field work necessary to obtain the statistical data on which Section II and Appendix A of the report are based was very ably done by Mr. John J. Pollock. The scientific analysis of food requirements for the population of the port district as derived from a study of budget surveys was carried out by Mr. Walter P. Hedden of Columbia University, under Professor Asher Hobson, representing the school of business of that institution.

The committee received the co-operation and assistance of practically every trade group, of which there were twenty-five, represented on the Commodities Committee. At some stage of the investigation it was necessary to ask assistance of practically every one of these trade interests, and we wish to acknowledge our appreciation of their helpful service.

In presenting this report it is not only the hope of the undersigned but of the committee as well, that it may lead to a greater public knowledge of the food distribution problem of the Port District; also that it may influence the realization of the need of a more effective method of gathering and assembling current information regarding net receipts of foodstuffs required to sustain the eight millions of people resident within the Port of New York District.

Very truly yours,
J. E. RAMSEY,
Chief Statistician.

February 1, 1922.

REPORT

Report to the Port of New York Authority on the Food Supply of the New York Port District Prepared by the Following Special Committee Consisting of Representatives of the Governmental Agencies Concerned with the Food Supply of the Port District:

Herschel H. Jones,
Chairman, representing, New York State Department of Farms and Markets.

Ole Salthe,
Representing, Department of Health, City of New York.

Alexis Clark,
Representing, New Jersey State Department of Agriculture.

Walter W. Scofield,
Representing, Department of Health, State of New Jersey.

William H. Stanton, Raymond L. Federson, H. B. Knoop,
Representing, Bureau of Markets and Crop Estimate, United States Department of Agriculture.

M. S. Rivenburgh,
Representing, Division of Agriculture, New York State, Department of Farms and Markets.

Asher Hobson,
Representing, School of Business, Columbia University.

OUTLINE

I. Introduction.
  - Purpose of report.
  - Formation of Governmental Agencies Committee.
  - Synopsis of contents.
  - Possible Uses of Material.

II. Quantities of Principal Foodstuffs Received Annually.
  - Methods of Determining Consumption.
  - Sources of Information.
  - Summary of Net Receipts.
  - Fresh Milk, Dairy Products, Butter, Cheese, Evaporated and Condensed Milk.
  - Flour, Wheat, Rye, Barley and Rice.
  - Meats.
  - Vegetables.
  - Fruits.
  - Eggs.
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  - Fish.
  - Sugar.
  - Coffee and Tea.
  - Canned Fruits, Vegetables and Fish.
  - Dried Fruits and Nuts.
  - Vegetable Oils and Compounds.
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III. Food Requirements for Population of the Port District, as Derived From a Study of Family Budget Surveys.

IV. Storage of Food Within The Port of New York District.

V. Transportation as a Factor in Supplying the Port District with Food.

APPENDIX A — Tables of Detailed Receipts.

APPENDIX B — Su*l*plemental Data Regarding Family Budget Studies.

I. INTRODUCTION

How much food is required to feed The Port of New York District? If railroad traffic were suddenly stopped, how long could the eight millions of people be supplied with food? Those two questions confronted the New York public seriously and unexpectedly when the first announcement was made in October, 1921, of a possible suspension of all rail transportation.

The various governmental agencies concerned with the handling of foodstuffs in New York and New Jersey each had certain kinds of information as to receipts of foods and amounts held in storage, but nowhere could a complete picture of the whole situation be obtained. The need for more adequate information as to sources of our food supply, the amounts on hand at different seasons and the consumptive requirements was apparent. Special investigations had been started by several governmental departments within their jurisdictions when The Port of New York Authority proposed the formation of a governmental agencies committee to deal with the problem for the entire Port District. Such a committee was promptly organized to include the following municipal, state and federal departments:

Department of Health, City of New York.
New York State Department of Farms and Markets.
Department of Health, State of New Jersey.
New Jersey State Department of Agriculture.
Bureau of Markets and Crop Estimate, United States Department of Agriculture.

This Committee had already launched a plan for collecting in one place all available information as to the District's food needs and supplies, when the prospect of an emergency passed. The work it had undertaken promised, however, to be of such permanent value. that the members of the Committee urged the Port of New York Authority to continue the investigation. In recognition of the unusual opportunity for making an important contribution to public knowledge of food distribution problems within the Port District through the cooperation of this Committee, the Port Authority readily agreed to provide the small amount of technical assistance necessary to enable the Committee to continue its work. Mr. Herschel H. Jones, Chairman of the

Committee, agreed to supervise the collection of data and assist in preparing a report.

This report is the condensed product of the Committee's investigations. It gives the annual and seasonal receipts of the most important commodities making up the food supply of the District. Receipts of most commodities are given by months. Receipts of fruits, vegetables, butter, cheese and eggs are further classified by States from which received. Net receipts or consumption, are calculated by making allowance for such factors as exports, imports and receipts by motor truck. Except for export data, however, there were no statistics as to outgoing shipments.

The report also affords a picture of the amounts of foodstuffs of different kinds held in storage within the District. It analyzes the various scientific attempts that have been made to estimate the amount of food required to feed a given unit of population and applies the best statistical experience to the problem of estimating the food requirements of the District on the basis of the present population.

The collection of these data was greatly facilitated by the cooperation of the members of the trade groups organized in conjunction with the Governmental Agencies Committee. For those commodities regarding which no data as to receipts or consumption were kept by any of the governmental agencies, the trade group representatives furnished estimates and statistics of great value.

The task of dramatizing the facts contained herein is largely left to others. Statistics seldom tell their own story, except to to those experienced in that particular field. The amount of human effort that goes into the production on the farms of the food for the Port District's millions can be imagined only by one who has himself been in close touch with the soil. The vast acreage of land involved in this production is equally staggering. The importance of transportation in supplying food to this enormous non-food producing center is abundantly illustrated in the classification of sources of supply. The problem of terminal handling and local distribution of the vast quantities of perishable commodities can be fully realized only by those who have actually seen a day's supply passing through the wholesale centers in the early morning hours. We become accustomed to large figures and quantities beyond the comprehension of our own experience just as we are accustomed to high buildings and subways.

It is hoped, that this analysis of the food supply and food requirements of the Port District will do more than merely excite temporary interest. It will have served a useful purpose if it helps bring about a better public understanding of the Port's problems.

It makes quite clear the need for a better coördination of records as to receipts of all foodstuffs and as to supplies on hand.

II. QUANTITIES OF PRINCIPAL FOODSTUFFS RECEIVED ANNUALLY

In estimating consumption of foods in the Port District two methods were applied: (1) calculation of net receipts after making deductions for exports and other factors; (2) determination of quantities required for the population of the Port District by analysis of family budget studies, and application of a theoretical unit food requirement, obtained from these studies, to the total population. The results of the first of these methods are presented under this heading.

Sources of Information.

There are no accurate data as to the quantities of all foodstuffs that move into or out of the Port District. The United States Bureau of Markets and Crops Estimates' office at New York secures daily reports from about forty common carriers, including all the railroads, of carlot receipts of fruits and vegetables, butter, cheese and eggs, live and dressed poultry, live stock and dressed meats. The City Department of Health keeps certain records as to the receipts of milk. The State Department of Farms and Markets issues daily reports covering receipts of principal farm products from New York State. The New York Produce Exchange records daily receipts of flour and grains. A private market reporting agency, Willett and Gray, issues reports as to receipts of sugar. The New York Coffee and Sugar Exchange keeps data as to coffee. Other food commodities come into the city and pass through wholesale market channels without official check by any governmental or trade agency.

The more pertinent facts regarding principal commodities are related briefly in the following sections. For more detailed information see Tables in Appendix A.

Summary of Net Receipts.

In general it may be said that the Port of New York District receives annually for local consumption the equivalent of about 531,000 carloads of foodstuffs. The daily receipts are approximately 1,800 carloads. This includes receipts by rail, water and truck. Any figure as to total daily receipts is an approximation, owing to the many channels through which food comes into the District and the many different kind of commodities that may be classed as food.

The following calculated net receipts for the main groups of commodities represents probably more than 90 per cent of the food consumed with the Port District annually:

Milk and dairy products:	*Pounds*
Fluid milk (977,522,440 quarts)	2,101,673,266
Butter	158,327,512
Cheese	36,467,875
Evaporated and condensed milk (trade estimate)	144,000,000
Flour and grains:	
Flour and wheat (in lbs. of flour)	1,411,200,000
Rye	163,326,464
Barley	41,490,432
Rice	90,000,000
Meat and meat provisions	817,342,060
Vegetables	1,485,502,041
Fruits	784,569,626
Eggs and poultry:	
Eggs (dozen)	156,791,869
Live poultry	156,399,000
Dressed poultry	98,499,559
Fish (trade estimate):	
Fresh and frozen	200,000,000
Dried, smoked and pickled	43,500,000
Sugar (trade estimate)	692,240,000
Coffee (trade estimate)	119,880,000
Tea (trade estimate)	25,000,000
Dried fruits (trade estimate)	51,000,000

	Pounds
Dried beans and peas (trade estimate)........	69,600,000
Nuts (walnuts and almonds only, trade estimate)	4,500,000
Canned fruits and vegetables...............	Not available
Vegetable oils and compounds (trade estimate).	36,000,000
Lard	154,523,675

Milk and Dairy Products.

Fluid Milk.— In importance as a daily necessity, especially for children, fluid milk ranks first. The total annual consumption in 1920 for the Port District was 977,522,440 quarts, an average of 2,670,000 quarts per day. The months of largest producton and consumption are May to October inclusive, but the lowest monthly receipts in 1920 were 70,440,440 quarts in February, an average daily consumption of about 2,500,000 quarts.

Approximately 420,000 cows, on 40,000 dairy farms, are required to furnish this enormous quantity of milk.

Milk comes in at night by special milk trains from six different States: New York, Pennsylvania, Connecticut, Vermont and Massachusetts and from Canada. Approximately 200 cars daily are employed to bring in the required supply. The haul averages a distance of about 250 miles.

No milk may be brought into the City of New York from sources that are not approved by the City Department of Health, and all except certified milk from the most sanitary dairies must be pasteurized before it may be sold for consumption. Similar regulations are enforced in New Jersey by the New Jersey Board of Health. Some milk is pasteurized and bottled in the country, but most of it is pasteurized and bottled at plants within the District.

Of the total amount of fluid milk received in the Port District an average of about 30 per cent is bottled and sold direct to the consumers. The balance is distributed in 40-quart cans to restaurants, hotels, etc., and to retail stores that sell loose milk.

Butter.— The net receipts of butter in the Port District in 1920 were 158,327,512 pounds, or an average daily consumption of 434,000 pounds. A considerable portion of the annual butter supply of the country is produced during the spring and early summer when cows are fresh and there is the greatest supply of milk. The surplus production of the spring is kept in cold storage houses at the large market centers and shipping points, and gradually released for consumption during the months when production is very light. Inasmuch as the quantity stored in the District is never more than enough to meet the requirements for thirty days, shipments must come in fairly steadily throughout the year. The largest receipts are always in June and July when storage houses are being stocked. The smallest are in April just before the new season of production begins. Other months do not vary greatly.

Minnesota, shipping nearly one-fourth the total New York receipts, sends by far the largest quantity of butter to this market of any of the butter producing states. The other main sources of supply in order of importance, are Illinois, Iowa, Nebraska, Ohio, Wisconsin, New York, Indiana and Michigan. Then come Canada and Denmark.

Cheese.—The calculated net receipts or approximate consumption of cheese in 1920 was 36,467,875 pounds, about 10,000,000 pounds less than the gross receipts after deducting exports. The largest single source of supply is New York State, with Wisconsin second. Other states in order of importance are Illinois, Pennsylvania, Michigan, California, Ohio and Iowa.

The period of maximum cheese production is the same as for butter, and the heaviest receipts in this market are in May, June, July and August.

Evaporated and Condensed Milk.—The receipts of evaporated and condensed milk for consumption in the Port District are estimated by leading members of the trade to be the equivalent of 3,000,000 cases of 48 sixteen-ounce cans per year, of which 1,800,000 cases are evaporated and 1,200,000 condensed.

The storage holdings of canned milk together with the supplies in all hands that is, manufacturers, wholesalers and retailers, is generally sufficient for four to six weeks supply. Stocks are lowest around the first of the year when inventories are made but even then are usually sufficient for three to four weeks supply. The heaviest production is during the flush season for fluid milk.

Flour and Grains.

Owing to large exportations of grains and flour from this port, only a small part of the gross receipts of wheat, rye, barley and flour are actually consumed here. The calculated net receipts, or approximate consumption, of these commodities in 1920 were as follows:

Flour and wheat (in pounds of flour)...	1,411,200,000 lbs.
Rye	163,326,464 lbs.
Barley	41,490,432 lbs.

To produce this amount of wheat, rye and barley, approximately 2,140,142 acres of grain fields were required, taking 1920 average production per acre as a basis.

Practically all of New York's flour and wheat comes from western states which produce more than two-thirds of the nation's wheat crop, about three-fourths of the barley crop and about six-sevenths of the rye crop. All of these grains are produced in New York State in small quantities, but are mostly consumed locally. New York State produces less than one-fourth of one per cent of the nation's wheat crop, about one and three-fourths per cent of the barley crop, and about two and one-fourth per cent of the rye crop.

Wheat, of course, goes to mills and is made into flour.

Rye is used chiefly in the making of bread. Barley is used principally as a cereal for soups.

Transportation of grain is chiefly by rail. Normally, the receipts by water are only about seven per cent of the total receipts. Barley is the principal grain received by water, about one-third of the total receipts coming by such routes.

Flour receipts in 1920 were fairly even month by month, except that in February, March, April and May, receipts were from one-third to one-half the average of other months. The heaviest receipts of wheat were in September, October, November and December; the lightest in February and March. Barley was received in varying monthly amounts during the year, the largest receipts being in October and March, and the smallest in June. Rye shipments came in with comparatively little fluctuation in quantity month by month, except for extremely light receipts in February and March.

There are always quantities of grain stored in the Port District The amount in storage varies wth the season of harvesting. The lowest holdings are generally during the late winter and early spring months, with the quantities increasing monthly from July to November and December when the largest amounts are in storage. Generally there is a sufficient amount in storage to supply the District for about thirty days.

Meats.

The approximate annual receipts of meats in the Port District may be classified as follows:

	Pounds
Beef (cattle and beef cuts)	448,092,133
Veal (calves)	115,911,118
Lamb; mutton and goat (lamb, sheep and goat)	135,499,333
Pork (hogs and hog cuts)	231,639,803
Total fresh meat*	931,142,387
Total meat provision†	343,387,813
Total all meat stuffs	1,274,530,200

Contrary to general knowledge The Port of New York District, considering the total number of heads slaughtered, is one of the most important live stock centers of the nation.

The sources of supply of fresh meats spread over a wide area confined mostly to the western and south-western states.

The figures for "fresh meat" include meat slaughtered in Chicago and other western packing houses and meat slaughtered locally. Meat provisions include all meat that is pickled, cured and manufactured into such products as frankfurters, bologna, liverwurst, salami, corned beef, ham, bacon, head cheese and meatloaf.

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* Calculated by subtracting from city dressed meats, 10 per cent of cows, 90 per cent of bulls, 40 per cent of hogs, and from western dressed 95 per cent of bulls, 75 per cent of hogs, such quantities being used for meat provisions. Percentages suggested by U. S. Bureau of Markets. Includes imports and storage surpluses. Outgoing rail shipments not figured. No information available for 1920.

† Provisions calculated by adding to amounts not used as fresh,— receipts of provisions as recorded by N. Y. Produce Exchange. Includes storage surpluses.

New York is not usually thought of as a large practical live stock market. An astonishingly large percentage of the fresh meat consumed here, however, comes in as live stock and is slaughtered either in Manhattan, Brooklyn or in New Jersey. In fact the Port of New York District ranks fourth in the nation as a live stock center from the standpoint of total number of animals slaughtered.

Of the receipts of fresh meat in the District for 1920, amounting to 1,057,719,349 pounds, only 327,433,754 pounds arrived dressed. The balance arrived on the hoof and totalled 5,091,964 head of cattle, calves, hogs, sheep and goats.

The two principal stock yards of the District are in Jersey City and at 60th street and Hudson river in Manhattan.

An investigation made in 1914 showed that all but about nineteen per cent of the animals are received at Jersey City. Fifty-nine per cent of the total head receipts are slaughtered on Manhattan. About five per cent is distributed to and slaughtered in Brooklyn and the remainder is slaughtered in New Jersey.

The greater proportion of the volume of live stock handled at this market is received from western yards, principally Kansas City, Omaha, St. Louis and Chicago.

The supply of meat is practically constant throughout the year, with only a very slight drop in receipts, especially of pork, during the summer months.

Of the receipts of live stock practically all of the bulls, almost half of the hogs, and a small part of the cows are used for the manufacture of meat provisions.

Almost all of the fresh meat arriving in the Port District is consumed here, there being very few outbound shipments. No records are obtainable as to these small amounts of outgoing fresh meats.

The amount of meat held in storage in the Port District is very small in comparison with the daily consumption. There are only slight seasonal fluctuations of amounts in storage, the smaller holdings being from September to February and the larger holdings from April to August inclusive. The month of maximum holdings is generally July and that of minimum holdings, November. During the winter months of 1920 only from four to six days' supply was in storage and during the summer only from six to eight days' supply.

Vegetables.

During a few weeks at the height of the local producing season, the Port District obtains a considerable portion of its fresh vegetables from nearby sections. But for the greater part of the year, vegetables are received in large quantities from distant parts of the United States and from foreign countries. As the seasons advance from mid-winter to late fall, the principal sources of supply of both fruits and vegetables move northward from the Gulf of Mexico to Canada, with liberal quantities from California at almost all seasons. A continuous rotation of production in different parts of the country is kept up year after year in supplying this market.

The following were the approximate receipts of the principal vegetables in 1920:*

	Pounds
Potatoes (white)	733,666,000
Onions	107,106,300
Potatoes (sweet)	69,804,000
Spinach	60,631,100
Tomatoes	59,541,825
Cabbage	55,991,250
Lettuce	53,113,200
Peppers	42,072,255
Beans (green, wax and lima)	36,769,063
Carrots	27,782,602
Celery	18,489,975
Peas	18,327,026
Receipts of other vegetables	202,207,445
Total	1,485,502,041

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* See Tables in Appendix A for complete list of annual receipts of all important vegetables in car lots or car lot equivalent and in pounds.

Of the commodities shown above, white potatoes are of course the most important. The chief sections from which they are received, in order of importance, are Long Island, Virginia, New Jersey, Maine, South Carolina, Florida, New York — other than Long Island — and North Carolina. Long Island supplied one fourth the entire receipts in 1920 and Virginia a little less than one-fifth.

Onions come from many different parts of the world. The principal states shipping to this market in order of volume of shipments are New York, New Jersey, Texas, Massachusetts, Ohio, California and Virginia. But there are many other sections which ship smaller quantities, and large shipments come every year from Spain, from Denmark and even from the banks of the Nile.

Sweet potatoes, which rank third among the vegetables in number of pounds received, are much more seasonal. They cannot be stored as safely as white potatoes or onions, and the area of their commercial production is much more limited. Practically all the sweet potatoes we use come from four states, Virginia, New Jersey, Delaware and Maryland. About half of them come from Virginia and about one-third from New Jersey. From September to December inclusive in 1920, most of the Virginia and Maryland crops and half the New Jersey crop were shipped. Delaware shipments and the rest of the New Jersey crop came in during January, February, March and April.

Spinach, by the rotation of producing areas shipping to this market, has become an all-year-round food. Its adoption into the regular diet of city families generally has undoubtedly added greatly to the health of the people. From the time local or northern supplies begin to diminish, the late crop from Maryland and then Virginia begins to increase. This is soon followed by Florida and Texas and the sources of supply again move northward through the country.

Lettuce, which used to be thought of as a summer salad, is now available to the city dweller in fairly abundant supply throughout the year. The heaviest carlot receipts of the year are, contrary to what might be expected, in December, January, February and March, coming from Florida and California. Then South Carolina and North Carolina come along with heavy shipments, followed by New Jersey and New York sections, till August and September when northern New York becomes the chief source of supply.

Tomatoes are rapidly eliminating seasons in their supply but they are yet received in very light quantities in November, December and January and are most plentiful in midsummer. Three-fourths of our annual supply comes from two states. Florida and New York. The Florida shipping season runs from late December to July. The New York State season begins in July and runs into November. Mississippi, California, Texas and Maryland also deserve mention for their contribution of tomatoes. Then there are small receipts in the periods of scarcity from Bermuda, Cuba, the Bahama Islands, the Canary Islands and from hot-houses.

Cabbage is received all the year round. During the months from July to October inclusive a large part of the supply comes from Long Island and other nearby sections. Judging by the carlot receipts the greatest consumption of cabbage would appear to be, however, in March, April and May when the new crop arrives from Florida and South Carolina. Virginia new cabbage follows in June.

There are about fifty different kinds of vegetables that may be received here in carlot quantities in the course of a year. The sources of supply of most of these vary at different seasons in a manner similar to that already described. In the local farmers' public markets there is usually during the summer months a great variety of green vegetables, and herbs that are grown nearby and which are never received here from distant sections in carlot quantities. Some of these are scarcely known outside of a particular racial or national group, as for example the "Italian" vegetables that may be found at Wallabout market in the height of the summer season.

How many acres of land are devoted to the production of these quantities of vegetables? This may be roughly estimated for those commodities for which the U. S. Department of Agriculture gives the average acreage in 1920. The quantity of white potatoes consumed in New York in a year, for example, would require 82,026 acres to produce. The number of acres required to grow our annual supply of lettuce is 17,850, of sweet potatoes 11,230, of tomatoes 7,088, of onions 4,666 and of celery 1,021.

Fruits.

The principal fruits received annually by the Port District approximate 1,866,569,626 pounds, or the equivalent of 72,969 carloads.

Oranges are consumed in the largest quantities of any single fruit, apples are second and grapes are third, according to the receipts of 1920 and 1921. Then come cantaloupes, watermelon, grapefruit, pears, strawberries and a long list of others.*

Bananas are received here in the largest quantities of any fruit; 579,622,000 pounds were received in 1920. This being a principal distributing center for bananas it is impossible to judge what proportion of the receipts are consumed locally.

Fruits are more seasonal in supply than vegetables but are received from almost as great a variety of sources. The production of citrus fruits, of which we receive annually 442,513,916 pounds or 14,276 carloads, is limited principally to California, Florida and Porto Rico. Apples of which the total annual receipts are about 350,973,000 pounds or 11,142 carloads, come from many different states but the chief source of supply alternates from year to year between the states of Washington and New York. It is fortunate that the year of heavy production in eastern sections does alternate with the year of heavy production in the northwest.

Grapes though a seasonal crop show total receipts in 1920 of 136,363,500 pounds. Practically the entire receipts at New York arrive between September and December inclusive. They are chiefly from California, with comparatively small quantities from New York, Michigan and Pennsylvania.

Cantaloupes are seasonal. The entire crop arriving in 1920 from June to November totalled 80,595,000 pounds. The shipping states are few in number, California shipping about two-thirds of the total receipts and the balance coming from Colorado, Maryland, Delaware, North Carolina, Georgia and Arizona. Receipts from California arrive throughout the season, while the entire supply from Maryland, Delaware, North Carolina, Georgia and Arizona is shipped during July and August. Cantaloupes from Colorada arrive during September and October.

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* See Tables in Appendix A.

Peaches are also a seasonal crop, almost the entire receipts, 9,111,375 pounds arriving from June to October. About one-third of the annual receipts of peaches come from Georgia; New Jersey and New York ship most of the balance. Small quantities come from Virginia and California. The heaviest receipts are during June, July and August from Georgia, New Jersey, Virginia and California. In September and October they come chiefly from New York State.

Pears appear in September and continue through the autumn months in increasing quantities. The total receipts of pears for 1920 were 56,950,000 pounds. The sources of supply in order of importance are New York, California, Washington, Oregon and New Jersey. Of these New York and California ship about three-fifths of the total receipts.

Eggs.

The importance of eggs as an article of diet may be realized when it is known that the net receipts in the Port District in 1920 were approximately 156,791,869 dozen, making an average daily consumption of 429,567 dozen, or 5,154,804 eggs.

This huge supply of eggs comes from more different states of the Union than does the supply of any other one commodity. The following are the principal sources, in order of their importance; Illinois, Iowa, Indiana, Ohio, Missouri, New York, California, Tennessee, Kansas, Pennsylvania, Kentucky, Texas and Michigan. Illinois sends one-fifth of the total supply and Iowa and Indiana each about half as much as Illinois. At least six other states and Canada, Denmark, China, Argentina and Australia contribute to this supply.

Eggs are produced in greatest quantities in the spring, the flush of production being in March, April and May. In some months production falls far below consumption and it is only by placing the surplus in cold storage houses that large urban centers are supplied. The maximum quantity in storage is usually at the end of July and from then on storage stocks gradually diminish until February and March, when the last of the previous season's holdings are withdrawn and the new season begins.

Because of the fact that many big cold storage houses are located in Chicago and at shipping points in the producing areas, receipts do not show as much seasonal variation as might be expected. The storage holdings in the Port District rarely exceed three months' supply.

Weather conditions have much to do with the quantity of eggs produced during the winter months. An open winter will greatly increase the supply from nearby and other northern sections and consequently decrease the demand for storage eggs.

Poultry.

Live poultry.— In 1920, 156,399,000 pounds of live poultry were received in the Port District. People of the Jewish faith eat only poultry that is killed according to certain ritual requirements and within a limited number of hours from the time it is slaughtered. Most of the live poultry received here is sold in Kosher shops and the standard as to quality, even in the poorest neighborhoods, is high. The supply is spread throughout the year but the heaviest receipts are from August to January, especially preceding the Jewish holidays.

Live poultry comes from all the middle western, southern and southwestern states, including Texas. A small percentage comes from the nearby states of New York, New Jersey, Pennsylvania and from Virginia. Freight shipments are sent in specially constructed cars.

Dressed poultry.— The receipts of dressed poultry in 1920 were 101,292,133 pounds, considerably less in gross weight than the receipts of live poultry. When proper deductions are made for amounts in storage at the end of the year, the calculated net receipts or approximate consumption amounted to 98,499,559 pounds or an average of 269,862 pounds per day.

The supply of dressed poultry comes from all parts of the United States, the most important shipping states being Illinois, Iowa, Indiana, Minnesota, Missouri, Texas, Kansas, Kentucky, Ohio, Tennessee and Michigan, with smaller quantities coming from New York, Maryland and Pennsylvania.

The greatest quantities of dressed poultry arrive in November, December and January. Receipts then decline to the lowest amounts in March and April, after which they steadily increase until the period of maximum shipments. The following are the kinds of dressed poultry received at different seasons:

January to May inclusive, principally old hens and old roosters.

June to September, broilers, springs, old hens and old roosters, ducks.

October, hens, springs and roasting chickens.

November and December, springs, roasting chickens, turkeys and geese.

About 50 per cent of the consumption of dressed poultry in the District is during November and December. A railroad crisis occurring on November 1, 1921 would have caused to be exhausted the cold storage holdings, which were then about 13,500,000 pounds, in about 15 days. During 1920 the minimum storage holdings were during August and September and the maximum were during February and March. The maximum storage holdings would take care of the needs of the District for from about 30 to 60 days.

Fish.

The fish supply of New York City falls into four main classes: Salt water fish, fresh water fish, frozen fish either from ocean or inland waters and preserved fish.

Contrary to the usual impression, New York does not get a large proportion of its fish from nearby ocean waters. Large quantities of fresh water fish from inland middle-western sections are consumed by the Jewish population. Salt water fish comes from all along the Atlantic Coast and from the Pacific Coast. And preserved fish comes from Europe and Canada as well as the United States.

There are no accurate records kept as to receipts of fish, but the wholesale trade estimates last year's receipts of fresh and frozen fish here to be about 200,000,000 pounds.

The season of fresh fish supply extends throughout the year but the greatest amounts arrive during the spring, summer and fall. If there is a severe winter the supplies can be obtained only from points below Charleston, Virginia. At such times stored and frozen fish take the place of the fresh supply. In fact at all times frozen fish is an important factor.

Along the New England coast and in the salmon producing districts of the Pacific coast there are large freezers where fish is frozen as harvested and kept in cold storage plants for gradual shipment by rail to the big markets.

The maximum quantity in storage within the Port District is during the fall and winter and is usually about 8,000,000 pounds. In some years these holdings have even been as great as 12,000,000 pounds. During the spring and summer, the amounts in storage are small, generally between 2,000,000 and 3,000,000 pounds.

The bulk of the supply, both fresh and frozen, comes by railroad express and not by water . It is carted from the railroad terminals down into lower Manhattan to the Fulton wholesale fish market built out over the water's edge and when sold is put back into trucks and wagons and taken uptown again or to wherever it is to be consumed or sold at retail. The more expensive varieties, such as shad, halibut, salmon, smelts, Spanish mackerel, king mackerel, sea trout and bluefish, come almost entirely by rail. The cheaper varieties, such as flounder, pollock, haddock, whiting, hake and weakfish, are generally brought by water.

A considerable amount of preserved fish is consumed in The District, 43,500,000 pounds annually. Dried, smoked and pickled fish are used chiefly by the foreign-born population.

Dried fish comes from Newfoundland, Nova Scotia, Massachusetts and Maine coasts. Halifax, St. Johns and Gloucester supply the bulk of the dried cod consumed by the foreign trade. Gloucester and the Maine coast also supply haddock, hake and pollock (flaked or picked-up fish, boneless) for use by the American trade. These are all manufactured at the sources of supply.

Smoked fish is manufactured primarily in New York City, but the sources of the raw product are the same as for the fresh fish. The varieties used are salmon and fresh water fish. The largest part (75 per cent) of pickled fish arrives from Norway, Holland, Ireland, Scotland and Canada; the balance coming from the Massachusetts and Maine coasts. Scotland and Newfoundland are the important sections supplying herring. These are used mainly by the Jewish trade. The other sections referred to supply markerel for consumption by the American trade.

The season of supply is spread throughout the greater part of the year with the smallest quantities arriving during the summer months. This decline is due to the lesser consumption of preserved fish when the fresh fish supply is abundant. The average total yearly receipts as approximated by the authorities of the trade are about 43,500,000 pounds composed of:

	Pounds
Smoked bloaters	500,000
Boneless herring	400,000
Scotch cured herring	16,000,000
Miscellaneous herring	4,000,000
Salt mackerel	5,000,000
Mild cured salmon	3,300,000
Dried cod	5,000,000
Dried haddock, pollock and hake	1,000,000
Stock fish	1,100,000
Boneless family fish	7,200,000

Considering the large amounts of preserved fish consumed in New York, there are comparatively small storage holdings at any time of the year. The only fish kept in large supply is salmon.

Sugar.

The estimated annual consumption of sugar in the Port District is 692,240,000 pounds, based on the per capita consumption of 86.53 pounds for the United States. Receipts greatly exceed this amount because of the location of refineries here. From July, 1920, to June, 1921, inclusive, the total receipts were 4,714,407,040 pounds. The greater part of this comes from Cuba, where the harvest season is from October to June. Other sources of supply are Brazil, Porto Rico, San Domingo and Louisiana. There are usually stocks on hand for two to three weeks' supply. The raw sugar is received throughout the year.

Coffee and Tea.

The estimated annual consumption of coffee in the Port District is 119,880,000 pounds and of tea, 25,000,000 pounds, according to trade estimates. Two thirds of our coffee comes from

Brazil and most of the tea from the Far East. New York is a distribution center for these commodities consequently receipts are greatly in excess of local consumption. They are easily stored and there are usually very large holdings on hand in the district. Consumption of coffee for the district is calculated from the United States per capita consumption of 11.988 pounds plus one-quarter which equals 14.985 pounds per capita.

Canned Foods.

Although canned foods are a very important part of the total food supply, it was impossible to obtain any definite information as to the quantity consumed in the Port District. Even those most experienced in the canned goods business were unwilling to estimate net receipts or local consumption of any general class of canned food. No records of gross receipts are kept by any public or private agency. Because of the continual widely scattered reshipment by wholesalers and jobbers no check could possibly be kept on the outgo.

In general it may be said that stocks of canned goods on hand in the district are at their height in the fall and early winter, that is in the months of October, November and December. Some of the large wholesale grocery houses lay in at that time most of their requirements for the whole year.

The following table gives the principal sources of supply and season of canning for the main canned vegetables.

Kind of vegetable	Source of supply	Season of canning
Asparagus	Cal., N. J., N. Y. and Ill.,	April, May and June
Beams (lima)	N. J., Ohio, Mich., Va., Md	Summer months.
Beans (pea and marrow)	Md., N. Y., Mich., principally for pork and beans.	All year.
Beans (string)	N. Y. and Md., Mich., Ohio, Wis., Cal.	Summer months.
Corn (sweet)	Me., N. Y., Mich., Wis., Minn., Ohio, Ind., Ill.. Md., Del. and Pa.	August and Sept.
Peas	Wis., Md., Del., N. Y., Ohio, Mich., Ind., Col., Utah.	June to Aug., inclusive.
Spinach	Md., N. Y. and Cal	Cal.— Jan. to Mar., and Aug. and Sept. Md. and N. Y.— Apr. and Sept.
Tomatoes	Va., W. Va., Md., Del., Pa., N. Y., N. J., Mich., Ohio, Ind., Ill., Mo., Cal., Utah.	Eastern States — July to Sept. inclusive. Pacific — July to Dec., inclusive.

The sources of supply and season of canning fruits are shown in the following table:

Kind of fruit	Source of supply	Season of canning
Apples	Va., W. Va., Md., Pa., N. Y., Me., Mich., Wash., Ore.	Aug. to Nov., inclusive.
Apricots	California	June to Sept., inclusive.
Berries	Md., N. Y., Mich., Wash., Ore.	June to Sept., inclusive.
Cherries	California	June to Sept., inclusive.
Peaches	Cal., Md., N. Y. and Mich	June to Sept., inclusive.
Pears (Bartlett)	Cal., Ore., Wash., N. Y., Mich.	Sept. and Oct., inclusive.
Pears (Kieffer)	N. J., Md., Del., N. Y. and Mich.	Oct. and Nov.
Pineapples	Hawaii	July to Sept., inclusive, Jan. and Feb. Summer pack greatest.

Consumption of canned fish is greatest from January to June but supplies are in distributors hands all the year round. The sources and season of packing of the principal varieties are as follows:

Kind of fish	Source of Supply	Season of packing
Salmon	Pacific Coast — Monterey, Cal., to Alaska.	South of Columbia river — Spring and early Summer and Fall. Alaska — Summer.
Sardines	Genuine — From San Diego north to Monterey Bay.	Pacific Coast — Early Spring and Summer.
	Imitation — Maine	Summer and early Fall.
Herring	Alaska	Summer.
Tuna	Southern California	Summer and early Fall.

Dried Fruits and Nuts.

Consumption in 1920 of dried fruits, including prunes, raisins, peaches, apricots, apples and figs, amount to about 51,000,000 pounds, of which 26,000,000 pounds were raisins, 16,000,000 pounds prunes, and 1,000,000 peaches.

Estimates as to consumption of nuts are available only for walnuts and almonds, of which a total of about 4,500,000 pounds are used.

About 65 per cent of the dried fruits are consumed during the six months from October to March, inclusive, and 70 per cent of the nuts in the same period, the demand for both being chiefly in November and December.

At least 90 per cent of the dried fruits are received from the Pacific Coast States. About one-half the nuts are received from foreign countries. Shipments are heaviest during the period from October to December, inclusive, and during these months considerable quantities may be placed in storage. The crops of dried fruits, however, are generally held in the producing States and shipped according to demand.

Vegetable Oils and Compounds.

Vegetable oils and compounds have in recent years greatly increased in importance as part of the food supply. No actual figures of receipts and consumption for the New York District are available, but the trade estimates the consumption at about 36,000,000 pounds per year. Included in this amount are oils and compounds used by manufacturers of salad dressings, by bakeries and for cooking and the table.

Of the total, approximately 21,000,000 pounds are vegetable compounds and 15,000,000 refined vegetable oils. The compounds are manufactured almost entirely from cottonseed oil, which is hardened generally by hydrogenation. Cocoanut oil and peanut oil are used in limited quantities.

The sources of supply of cottonseed oil are the Southern States, primarily from North and South Carolina.

Corn oil arrives from the Western States comprising the corn belt. The movement of the crude oils starts in the fall and continues throughout the winter, refining being done at a number of central points. All transportation is in tank cars by rail. Much of the refining is done within the Port District, and there is always on hand a thirty days' supply and frequently enough for sixty days.

Dried Peas and Beans.

Regarding these commodities, we can only take the estimates of the trade as to annual receipts for consumption within the District. These are as follows in approximate figures:

	Pounds
Split peas	30,000,000
Green peas	9,600.000
Beans	30,000,000

New York State produces large quantities of beans, but the local supply of dried beans and peas comes principally from Western States. Wisconsin is the most important shipping State for dried peas, both green and split. The bulk of the dried bean receipts are from Michigan, California and New York. The pea beans practically all come from Michigan and New York, while the most important shipping State for lima beans is California.

The season of receipt for dried peas is from November to March, inclusive, when about 75 per cent of the total is shipped. The largest part of the receipts of beans is from January to May, inclusive.

With the exception of green peas, the stocks held in storage are generally fairly large. All the peas and most of the beans arrive by rail, but some beans come by water from California.

Lard.

The New York Produce Exchange reports the receipts of lard in New York in 1920 as 154,523,675 pounds. The exports of lard from this port are several times that amount. There is no information to indicate the consumption within the Port District.

III. FOOD REQUIREMENTS FOR THE PORT DISTRICT POPULATION.

Another way of determining how much food is required to feed the population of the Port District is to determine the amount of food normally required for a theoretical person and apply this derived factor to the total population. In view of the uncertainty of the data available as to net receipts of various food commodities, it seemed desirable to prepare this kind of an estimate as a check against the calculated net receipts.

Various governmental and private agencies have conducted quantity food budget investigations in recent years, mostly for the purpose of determining standards of living and costs of living among wage-earning groups. Some of these studies are useless for our purposes because the groups covered are not generally representative enough of the District's population. Others deal with strictly dietetic standards, analysis of energy and body-building content. Nevertheless, there are some six or seven studies which may be reduced to a common denominator, compared and applied to the Port District population.

The last census gives the total population of the Port District as eight millions. Obviously this figure is not a satisfactory index of unit food consumption, however, for it includes infants under one year and grandfathers over seventy-five. Among these inhabitants may be found people of all nationalities and occupations. A person, then means little as an idea of food habits and needs, nor is there any certainty that eight million persons balance individual variation and establish an average type.

To make accurate adjustment for nationality, occupation and individual whim in a population of eight millions would be a labor of months, if not years. However, the most important variable factor seems to be that of age and for that we can make a workable adjustment. If we may believe the United States Department of Agriculture,* sectional and racial differences in diet are fast disappearing. At all events, we may agree that the regime of the chain store and the quick lunch tends to foster a homogenous appetite. Careful standards for judging differences in food consumption due to the nature of occupation have been worked out by dietitians, but they are exceedingly difficult to apply to a large population with any accuracy.

Tables for expressing age variations in consumptive needs have been computed by several experts both in the United States and Europe. Three of the most recent and reliable of these tables were chosen for comparison and application to the Port population. The first problem was to get the age distribution of the population in the Port District which was obtained from the last census and then to multiply this age distribution by the scales that make the necessary adjustments for sex and age. When this was done it was found that there are approximately seventy-eight equivalent adult males to every hundred population. Multiplying the 8,000,000 population of the Port District by 78 per cent gives 6,240,000 equivalent adult males.

The next step in estimating food needs in the District was to find how much of different groups of foods an average "equivalent adult male" eats in a year. The results of investigations by federal government and other agencies were used in determining these quantities. A full discussion of these investigations and the use made of them will be found in Appendix B.

Suffice to say that the quantities consumed per person, as established by these inquiries were compared and the most likely figures selected. Thereafter this figure was multiplied by 6,240,000, the estimated number of "equivalent adult males" comprising the Port District's population. The results are shown in the following table:

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* Yearbook of U. S. Dept. of Agriculture, 1920.

Total and Average Unit Consumption Annually of Foodstuffs Within Port of New York District Derived From Quantity Budget Investigations

COMMODITY	Consumption per equivalent adult male.	Total estimated annual consumption.
	(Quantities stated in pounds)	
Total meat (including meat, provisions and poultry)	155	967,200,000
Fish	26	162,240,000
Milk (whole sweet)	277	1,728,480,000
Cheese	6	37,440,000
Eggs	30	187,200,000
Total fats (including butter)	36	237,120,000
Total cereals (including bread stuffs)	300	1,872,000,000
Total vegetables (fresh, dried and canned)	333	2,077,920,000
Total fruits	120	748,800,000
Sugar	55	343,200,000
Tea and coffee	15	93,600,000
Total	1,355	8,455,200,000

IV. STORAGE OF FOOD WITHIN THE PORT DISTRICT.

In supplying the huge urban population of the Port District with food storage is of greatest importance. Without large cold storage and dry storage facilities the public would be at the mercy of daily receipts which are chiefly by railroad. Without storage there could be no even flow of commodities into the consuming market regardless of seasons of production or periods of shipment. Without storage there would be sky-rocketing of prices or demoralization of markets with the rise and fall of receipts.

Cold storage has made possible the holding of such perishable commodities as butter, eggs, poultry, meats, fish and some fruits and vegetables in their original state for use during the seasons of scarcity.

In considering the problem of food storage, cold storage is always distinguished from dry storage. Cold storage involves the maintenance of an even temperature varying for different commodities from slightly above freezing to several degrees below zero. Dry storage refers to storage where no refrigeration is required.

Within the Port District there were in November, 1921, 66 public cold storage plants, 54 of which were in Greater New York and 12 in New Jersey. Of those in New York, 36 were in the Borough of Manhattan, 12 in the Borough of Brooklyn, 5 in the Borough of the Bronx and 1 in the Borough of Queens.

In New York State cold storage warehouses are subject to strict regulations and to inspection by the State Department of Farms and Markets. In New Jersey similar control is maintained by the State Board of Health. Both these agencies receive reports as to holdings in all of the plants within their jurisdictions at the end of each month and have authority to obtain any information that may be required from the storage houses at any time. Every public cold storage plant in New York State is inspected every two weeks to see that no foods are being held in violation of the law.*

Inasmuch as current information is always available as to cold storage holdings at the offices of the departments above mentioned only data as to holdings on November 1, 1921 are given here, to indicate the scope of the official reports. New Jersey reports on only a limited list of commodities and figures for both States exclude fruits and other foods not coming under the cold storage laws.

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* See bulletin "Foods and Markets" issued by the New York State Department of Farms and Markets, April, 1919, for further information relative to Cold Storage.

Holding of Foodstuffs in Public Cold Storage in the Port District, November 1, 1921.

Commodities reported on monthly	New York City holdings	New Jersey holdings in Port District	Total holdings
	Quantities in pounds		
Butter (creamery)	11,951,373	3,337,283	15,288,656
Cheese (American)	3,614,432	634,962	4,249,394
Eggs, cases	588,135	352,175	940,310
Eggs, broken	*	1,347,120	
Frozen beef	3,590,924		
Frozen pork	2,632,683		
Frozen lamb and mutton	2,089,331		
Miscellaneous meats	3,529,749		
Frozen fresh meats		2,746,823	14,589,510
†Cured beef	839,310	*	
Dry salt pork	88,296	*	
Sweet pickled pork	907,904	*	
Broilers	3,463,607		
Roasters	3,990,067		
Fowls	948,228		
Turkey	1,006,857		
Miscellaneous poultry	4,062,293		
‡Poultry		1,917,168	15,388,220
Fish (frozen)	7,263,324	1,114,838	8,351,162
Milk and milk products	*	303,890	
Edible nuts and oils	*	2,036,500	

* Information not available.

† Term used by N. J. Dept.

‡ N. J. holdings only under general classification.

DRY STORAGE.

No agency keeps current statistics of dry storage holdings. In fact no public agency at the time of the threatened tie-up of transportation in October 1921 had even an up-to-date list of dry storage houses containing foodstuffs.

When that emergency threatened, the New York State Department of Farms and Markets instituted a survey of all dry storage houses in Greater New York to find how much food was on hand in these places. The Department of Health of New York City began at about the same time a territorial survey of food stocks on hand in all kinds of establishments as well as in public warehouses. Under the direction of this committee the results of the two investigations were combined and the survey extended to New Jersey cities with the help of the New Jersey State Bureau of Markets.

Of the 592 warehouses visited, 124 were found to have foodstuffs in storage. Of these 14 were in New Jersey and 110 in Greater New York.

A total of 263,949,462 pounds of foodstuffs was found in these public dry storage houses. It should be borne in mind that these data do not cover holdings in private warehouses, in wholesale establishments and various other places that would not be classed as public warehouses.

The following table affords a picture of what may be on hand exclusive of retail and jobbing stocks, at this time of the year. Obviously, however, one can draw no conclusions as to whether these quantities are large or small without taking into consideration daily or weekly consumption within the District. As much information on this subject as it is possible to offer is given elsewhere in this report.

Holding of Foodstuffs in Public Dry Storage Warehouses in the Port District, November 1, 1921.

(All figures in pounds)

Commodity Group	New York City	New Jersey cities	Total
Flour:			
Wheat	10,832,490	663,086	11,495,576
Corn	1,214,825	89,760	1,304,585
Pancake			
Tapioca			
Buckwheat			
Rice			
Potato			
Cereals:			
Corn Meal	4,170,580	536,705	4,707,285
Corn Flakes			
Health Food			
Cream of Rice			
Rolled Oats			
Maize			
Fruited Oats			
Fruited Wheat			
Cream of Wheat			
Bran			
H-O			
Force			
Grape Nuts			
Post Toasties			
Tapioca			
Rice			
Milk:			
Canned	5,500,480	4,666,590	10,167,070
Bulk	194,400	51,139	245,539

Commodity group	New York City	New Jersey cities	Total
Canned vegetables:			
Peas	462,039	1,000	4 3,039
Beans	797,891	....	9797,891
Tomatoes	11,187,838	115,840	11,303,678
Corn	1,263,169	65,515	1,328,684
Spinach	28,860	....	28,860
Miscellaneous canned vegetables:			
Beets	285,963	....	285,963
Carrots			
Succotash			
Sauerkraut			
Lentils			
Asparagus			
Pimentos			
Not specified	1,148,615	....	1,148,615
Canned fruits:			
Pineapples	2,427,025	....	2,427,025
Cherries			
Pears			
Apricots			
Peaches			
Berries			
Apples			
Prunes			
Rhubarb			
Fish:			
Salmon	758,092	....	758,092
Sardines	199,056	....	199,056
Herring	286,484	....	286,484
Tuna fish			
Mackerel			
Bloaters			
Salt fish			
Codfish			
Anchovies			
Lobsters			
Miscellaneous (not specified)	4,949,931	57,000	5,006,931
Dried vegetables:			
Beans	20,945,480	408,500	21,353,980
Peas	10,649,965	....	10,649,965
Miscellaneous (lentils and other not specified)	1,232,950	....	1,232,950
Dried fruits and nuts:			
Prunes	3,535.779	....	3,535,779
Raisins	768,679	....	768,679
Apricots	7,799,144	....	7,799,144
Peaches			
Apples			
Figs			
Pears			
Dates			
Cherries			
Citron			
Walnuts	797,560	....	797,560
Almonds			
Peanuts			
Coffee	110,836,147	1,510,168	112,346,315
Tea	19,500,000	500,000	20,000,000
Chocolate	734,050	21,800	755,850

Commodity group	New York City	New Jersey cities	Total
Cocoa	12,774,649	2,320,480	15,095,229
Sugar	2,627,762	123,075	2,750,837
Honey	1,019,645	....	1,019,645
Jams and jellies	120,763	16,750	137,513
Syrup and molasses	1,146,550	72,945	1,219,495
Meat, canned	430,794	76,956	507,750
Other containers	4,266,846	....	4.266,846
Miscellaneous canned goods	6,320,429	....	6,320,429
Miscellaneous foodstuffs:			
Corn starch	848,833	588,290	1,437.123
Eggs			
Yolk, powdered			
Macaroni and spaghetti			
Condiments			
Olives			
Olive oil			
Artichokes			
Gelatine			
Pickles			
Salmon			
Sandwich spread			
Dessert powder			
Vanilla flavor			
Japanese groceries			
Salt			
Cocoanut			
Potatoes			
Baking powder			
Soda			
Cauliflower			
Nut butter			
Total	252,063,863	11,885,599	263,949,462

V. TRANSPORTATION AS A FACTOR IN FEEDING THE PORT DISTRICT

A threatened tie-up of railroad transportation such as the country faced last October impresses one with the extent to which the Port District is dependent on the railroads for delivery of necessities, especially perishable foods. Such a situation invites attention at once to the question of how much of the food supply of the Port District could be brought here by other means of transportation and how long this densely populated non-producing area could be sustained without rail transportation.

A study of Section II of this report and the tables in Appendix A will show that the length of time the city could sustain itself under such a condition would vary considerably with the season of the year, just as sources of supply and stocks in storage vary.

It would seem to be physically possible to bring into the District either by water or by motor truck at any time of the year enough of certain staple foods to supplement stocks on hand and prevent starvation for a considerable length of time.

The first and most difficult problem would be to keep up the minimum necessary daily supply of fluid milk. This would seem impossible except by maintenance of the regular milk trains because of the comparatively great distance of milk producing areas and the impracticability of attempting either motor truck or water transportation for it on a large scale.

Staple vegetables such as potatoes, onions, cabbage and carrots could be supplied to the port district by motor truck from nearby sections or by water from southern or foreign points at practically all times of the year. In the winter months a considerable portion of the fresh fruits and fresh vegetables from southern sections could come by water, as some of it has been coming for years. California products have been shipped here in increasing quantities by way of the Panama canal, indicating the possibility of further development of this means of transportation even for certain perishables.

A cessation of railroad transportation would immediately cut off the bulk of the supply of live stock and live poultry.

Such commodities as sugar, coffee and tea which reach here almost entirely by water would not be affected by stoppage of rail transportation, although other sections dependent upon this distributing market might suffer.

With regard to flour, grains, canned goods, eggs, butter, cheese, evaporated and condensed milk, frozen meats and frozen poultry, the quantities on hand in storage during the major part of the year would be a great protection against any temporary emergency. A supply of fresh fish could be had by water transportation from all points on the Atlantic coast. This would be possible at all times of the year except during a very severe winter season.

Within the last three years there has been a great growth in the use of the motor truck for hauling fruits, vegetables and other farm products to the New York market. During the last summer ripe tomatoes were brought here by motor truck from central New York and regular motor routes for marketing produce were in operation between this market and various up-state points, also eastern Pennsylvania and New Jersey sections.

One outstanding fact in the consideration of other means of transportation of foods than by rail, is the comparatively slight use that has been made of the Barge canal for bringing New York State products to market. The location of this canal, passing through the center of the State's richest producing areas, would seem to offer far greater possibilities than have yet begun to be realized.

APPENDIX A

The Tables that Follow Contain Data on Which the Statements in Section II are Based. Most of These Data were Tabulated Directly From Original Records of Daily Receipts Supplied by the United States Bureau of Markets and Crop Estimate. Receipts of Grains and Meat Provisions Were Obtained From the New York Produce Exchange; and Live Poultry From the Urner-Barry Company. A Considerable Part of These Data Were Obtained From Trade Sources.

TABLE I

CALCULATED NET RECEIPTS OR APPROXIMATE CONSUMPTION PRINCIPAL FOOD STUFFS WITHIN NEW YORK PORT DISTRICT FOR THE YEAR 1920.

Quantities Stated in Pounds

Commodity	Receipts by rail, truck or water	Deductions for outbound shipments exports and storage	Calculated net receipts or approximate consumption
Cereals:			
Flour and wheat (in terms of flour)	4,259,254,208	2,828,054,208	1,411,200,000
Rye	1,384,275,984	1,220,949,520	163,326,464
Barley	259,646,736	218,156,304	41,490,432
Rice	90,000,000	....	90,000,000
Total	5,973,176,928	4,267,160,032	1,706,016,896
Milk (fluid, quarts)	977,552,440	None	977,552,440 qts. or 2,010,673,266 lbs.
Meats:			
Fresh meat and provisions	1,274,530,200	457,188,140	817,342,060
Live poultry	156,399,000	None	156,399,000
Dressed poultry	101,292,133	2,792,574	98,499,559
Total	1,532,221,333	459,980,714	1,072,240,619
Fresh vegetables	1,485,502,041	None	1,485,502,041
Fresh fruits	1,866,569,626	1,082,000,000	784,569,626
Butter	163,010,285	4,682,773	158,327,512
Cheese	46,882,133	10,414,258	36,467,875
Eggs (dozen)	153,731,040	+6,268,980	156,791,869

TABLE II

MILK (FLUID), RECEIPTS*

At New York Port District, 1920

	Quarts
January	73,419,520
February	70,440,440
March	78,446,920
April	77,827,160
May	88,506,720
June	89,953,080
July	90,230,320
August	85,821,440
September	81,074,540
October	82,983,360
November	79,137,880
December	79,680,960
Total	977,522,440

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* Of total 3,835,851 quarts were received bottled.

TABLE III

BUTTER

Receipts (in pounds) at New York port district, 1920

	Minn.	Illinois	Iowa	Nebraska	Ohio	Wisconsin	New York	Indiana	Michigan	Canada	Total including miscellaneous
January	2,985,614	1,575,335	1,218,936	1,378,282	906,139	724,519	341,483	1,056,254	572,841	....	11,655,533
February	2,753,533	1,695,226	1,353,922	795,890	582,355	591,841	364,360	709,947	754,834	....	10,521,459
March	3,879,442	1,412,088	1,824,173	1,493,071	460,075	928,232	526,492	485,513	758,465	504,713	13,022,761
April	2,582,625	1,260,332	833,532	509,984	202,990	338,720	568,773	294,690	503,832	147,933	7,933,088
May	2,662,636	2,449,445	1,609,551	860,954	457,730	528,219	602,248	519,232	719,561	101,267	12,376,406
June	6,442,864	3,452,462	3,062,817	2,015,384	1,497,072	1,407,754	974,356	929,189	813,893	144,539	22,188,481
July	6,900,792	3,006,220	3,139,633	1,798,265	1,874,114	1,327,382	707,970	874,836	791,952	202,630	21,576,099
August	5,053,381	2,532,781	1,881,501	1,080,101	1,605,274	990,157	862,699	632,804	516,901	210,764	17,334,466
September	3,595,288	1,783,709	1,830,282	1,837,882	1,417,278	862,274	677,315	469,081	328,912	66,535	13,845,091
October	3,017,974	1,425,377	1,615,721	1,414,316	1,574,076	703,188	691,619	165,819	321,060	85,463	12,079,191
November	2,468,787	1,356,952	1,194,483	851,977	1,427,094	565,305	681,761	448,289	392,063	337,439	10,437,564
December	2,663,593	1,652,054	1,062,125	1,168,291	898,474	661,769	447,487	342,677	329,680	163,711	10,040,146
Totals	45,006,529	23,601,981	20,626,676	15,204,397	12,902,671	9,629,360	7,446,563	6,928,331	6,803,994	1,964,994	163,010,285

TABLE IV

CHEESE

Receipts (in pounds) at New York port district, 1920

	New York	Wisconsin	Illinois	Pennsylvania	Michigan	California	Ohio	Iowa	Total, including miscellaneous
January	1,703,059	652,603	640,075	115,669	50,502	87,016	39,838	....	3,423,690
February	1,108,394	505,124	262,807	159,587	66,557	65,480	910	4,600	2,508,973
March	1,781,618	699,930	484,289	298,728	137,711	54,033	19,882	5,042	3,753,628
April	978,011	170,360	109,546	91,771	2,870	4,097	1,720	....	1,459,712
May	2,034,678	950,716	921,357	210,216	42,201	89,164	20,612	53,047	4,438,841
June	3,130,773	1,686,829	590,121	397,708	47,388	67,691	15,415	57,117	6,363,874
July	2,051,935	3,147,628	476,325	183,345	30,281	....	33,834	....	5,981,066
August	1,741,190	2,080,993	459,069	125,840	43,100	....	116,953	61,101	4,852,940
September	1,471,463	1,282,925	420,898	67,119	6,542	....	88,191	....	3,373,530
October	1,516,409	1,029,010	284,867	97,981	70,570	5,620	80,904	56,568	3,207,594
November	1,777,528	1,235,653	340,159	60,637	68,344	55,000	53,469	4,202	3,755,825
December	1,726,988	973,094	534,541	103,359	33,896	119,175	19,523	....	3,762,460
Totals	21,022,046	14,414,865	5,524,054	1,911,960	599,962	547,276	491,251	241,677	46,882,133

TABLE V

GRAIN AND GRAIN PRODUCTS, RECEIPTS

At New York Port District, 1920

	Flour, barrels	Wheat, bushels	Barley, bushels	Rye, bushels
January	635,634	1,019,200	471,700	1,034,000
February	337,526	924,000	594,800	406,250
March	568,763	972,800	810,650	813,750
April	214,460	1,264,200	100,100	1,101,600
May	390,217	1,452,000	114,800	1,707,000
June	467,141	2,469,100	62,900	3,549,600
July	731,570	5,221,570	419,900	2,762,214
August	771,706	6,301,600	294,100	1,869,200
September	727,488	9,333,400	138,400	3,277,500
October	609,305	9,925,096	1,043,657	3,938,000
November	676,126	11,577,800	740,500	2,235,500
December	775,775	12,112,569	617,800	2,024,200
Totals	6,905,711	62,573,335	5,409,307	24,719,214
Total number of containers	6,905,711	62,573,335	5,409,307	24,719,214
Pounds per container	196	60	48	56
Total receipts, pounds	1,353,519,356	3,754,400,100	259,646,736	1,384,275,984

Receipts (in pounds), divided as between Rail and Water Transport

Rail	1,334,460,512	3,624,762,000	173,383,200	1,314,566,400
Water	19,058,844	129,638,100	86,263,536	69,709,584

TABLE VI

FRESH MEAT, RECEIPTS

At New York Port District, 1920

	Western dressed, head	Local slaughter, head	Total[1] head	Average weight per head	Total in pounds
Steers	326,685	384,648	711,334	495	353,110,330
Cow	54,568	72,241	126,809		62,770,455
Bulls	12,374	52,748	65,122		32,235,390
Veal (calves)	495,929	737,168	1,233,097	94	115,911,118
Hogs	21,215	2,144,325	2,165,540	160	346,486,400
Lambs	1,002,378	....	1,002,378	38	38,090,364
Mutton (sheep)	393,792	1,699,841	2,093,633		79,558,054
Goats	3,412	992	4,404		164,692
Total	2,310,353	5,091,964	7,402,317	....	1,028,326,803
Pork cuts, pounds	25,324,089	....	....	....	25,324,089
Beef cuts, pounds	4,068,457	....	....	....	4,068,457
Total fresh meat (including fresh meat used for provisions)	....	....	....	....	1,057,719,349

TABLE VII

APPROXIMATE ANNUAL RECEIPTS OF PRINCIPAL VEGETABLES

At New York Port District

(Based on 1920 and 1921 receipts)

Commodities of Which More Than Ten Million Pounds are Received Annually

Commodity	Pounds	Car lots or equivalent
Beans (green, wax and lima)	36,769,063	1,491
Cabbage	55,991,250	2,191
Carrots	27,782,602	1,149
Cauliflower	17,473,950	1,131
Celery	18,489,975	1,307
Corn	10,159,302	446
Cucumbers	58,222,552	2,090
Lettuce	53,113,200	3,077
Onions	107,106,300	3,778
Peas	18,327,026	717
Peppers	42,072,255	1,568
Potatoes (white)	733,666,000	17,124
Potatoes (sweet)	69,804,000	2,216
Spinach	60,631,100	3,031
Tomatoes	59,541,825	2,874
Turnips	14,434,213	479
Total	1,383,584,613	44,669

NOTE.— Quantities in pounds include receipts by rail, water and truck. Quantities in carlots exclude receipts by truck.

TABLE VIII

APPROXIMATE ANNUAL RECEIPTS OF PRINCIPAL VEGETABLES

At New York Port District

(Based on 1920 and 1921 receipts)

Commodities of Which Less Than Ten Million Pounds are Received Annually

Commodity	Pounds	Carlots or equivalent
Asparagus	7,261,500	282
Artichokes	4,137,230	207
Beets	5,465,489	689
Brussel sprouts	1,857,522	120
Eggplant	9,810,750	366
Endive	82,709	6
Escarole	1,405,950	91
Garlic	814,300	27
Kale	9,992,895	499
Leeks	69,937	3
Mushrooms	4,383,535	219
Okra	578,490	28
Parsley	567,488	22
Parsnips	185,400	6
Radishes	5,460,957	265
Romaine	1,081,294	70
Squash	2,151,258	69
Watercress	151,224	9
Miscellaneous vegetables	46,459,500	2,272
Total	101,917,428	5,250
Add total from Table VII	1,383,584,613	44,669
All vegetables	1,485,502,041	49,919

NOTE.— Quantities in pounds include receipts by rail, water and truck. Quantities in carlots exclude receipts by truck.

TABLE IX

APPROXIMATE ANNUAL RECEIPTS OF PRINCIPAL FRUITS

At New York Port District

(Based on 1920 and 1921 receipts)

Commodity	Pounds	Carlots or equivalent
Apples	350,973,000	11,142
Cantaloupes	80,595,000	3,980
Grapes	136,363,500	5,772
Peaches	9,111,375	3,471
Pears	53,950,000	1,960
Total	630,992,875	26,325
Grapefruit	65,520,000	2,016
Lemons	7,523,700	895
Oranges	361,627,500	11,127
Tangerines	7,842,716	238
Total	442,513,916	14,276
Cherries	9,313,960	372
Currants	1,787,050	79
Plums	6,350,240	211
Strawberries	25,002,000	1,852
Other berries	9,315,026	311
Total	51,768,276	2,825
Pineapples	13,520,000	450
Pumpkins	123,909	6
Watermelons	69,810,000	2,327
Miscellaneous fruits	78,218,650	2,607
Total	161,672,559	5,390
Bananas	579,622,000	24,153
Total all fruits	1,866,569,626	72,969

TABLE X

Primary Sources of Supply, Principal Vegetables

Year 1920, *By Months*

	Potatoes, white	*Onions*	*Potatoes, sweet*	*Tomatoes*	*Cabbage*	*Lettuce*	*Celery*
January	L. I. Me. N. Y. Va. N. J.	N. Y. Ohio. Mass. Cal. N. J.	N. J. Del. Va. Md.	Fla.	N. Y. Fla. Cal.	Fla. Cal.	Cal. N. Y. Fla. N. J.
February	L. I. Me. N. Y. Va. N. J.	N. Y. Ohio. Mass.	N. J. Del. Md. Va.	Fla.	Fla. N. Y. Cal. S. C.	Fla. Cal.	Fla. Cal. N. Y.
March	L. I. Me. N. Y. N. J. Va.	N. Y. Ohio. Mass. Cal.	N. J. Va. Del. Md.	Fla.	Fla. N. Y. Cal.	Cal. Fla. N. J. S. C.	Fla. Cal. N. Y.
April	Me. L. I. N. Y. Va. Fla.	N. Y. Ohio. Mass. Tex.	N. J. Del. Va. Md.	Fla.	Fla. Cal. S. C. N. Y.	S. C. Fla. Cal. N. C. N. J.	Fla. Cal.
May	Fla. Me. N. Y. S. C. L. I. N. Y. N. J.	Tex. Cal. Mass. N. Y.	N. J. Del. Va.	Fla.	S. C. Fla. La. Ala. Va.	S. C. N. C. Cal. Fla. N. J.	Fla.
June	Va. Fla. S. C. N. C. Me. N. Y.	Tex. Cal.	N. J. Del.	Fla. Miss. Tex. Md.	Va. S. C. N. J. Ala.	N. J. Cal. N. Y. N. C.	Fla. N. J. N. Y.
July	Va. N. J. L. I. N. C. S. C.	N. J. Tex. Va. Cal.		N. Y. Miss. Md. Tex. Fla.	N. J. Va.	N. Y. N. J.	N. Y. N. J.
August	Va. N. J. L. I. N. C.	N. J. Va. Mass. N. Y. Tex.		N. Y. Md.	N. J.	N. Y.	N. Y. N. J.
September	L. I. N. J. Va. Me. N. Y.	Mass. N. Y. N. J. Va. Ohio.	Va. Md. Del.	N. Y.		N. Y. N. J.	N. Y. N. J.
October	L. I. N. J. Me. N. Y. Va.	N. Y. Mass. Ohio. N. J. Cal.	Va. N. J. Md. Del.	N. Y. Cal. Md.	N. Y.	N. Y. N. J. Cal.	N. Y. N. J.

TABLE X — (*Concluded*)

	Potatoes, white	*Onions*	*Potatoes, sweet*	*Tomatoes*	*Cabbage*	*Lettuce*	*Celery*
November	L. I. N. J. Me. N. Y. Va.	N. Y. Ohio. Mass. Cal. N. J.	Va. N. J. Md. Del.	N. Y. Cal.	N. Y.	N. J. Fla. Cal.	N. Y.
December	L. I. Me. N. Y. Va. N. J.	N. Y. Miss. Ohio. N. J.	N. J. Va. Md. Del.	Fla. Cal.	N. Y.	Fla. Cal. N. J.	Cal. N. Y. Fla.

NOTE: States are arranged in order of importance.

TABLE XI.

WHITE POTATOES, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	L. I.	Va.	N. J.	Me.	S. C.	Fla.	N. Y.	N. C.	Misc. sources	Total all sources
January	347	5	2	236	.....	.....	81	.....	55	726
February	224	2	2	254	.....	.....	76	.....	68	626
March	291	4	10	261	.....	.....	224	.....	83	873
April	120	5	.....	320	.....	7	65	1	279	797
May	1	1	1	229	46	327	37	.....	435	1,077
June	1	1,094	.....	25	972	600	1	477	346	3,516
July	39	1,900	254	.....	4	1	.....	14	17	2,229
August	159	399	495	.....	.....	.....	.....	10	33	1,096
September	822	122	729	50	.....	.....	6	.....	29	1,758
October	822	20	486	52	.....	.....	40	.....	39	1,459
November	915	87	258	136	.....	.....	89	.....	34	1,519
December	634	91	87	254	.....	.....	105	.....	277	1,448
Totals	4,375	3,730	2,324	1,817	1,022	935	724	502	1,695	17,124

NOTE: One carload equals 38,000 lbs. Above figures exclude receipts by truck approximating 83,000,000 lbs.

TABLE XII.

ONIONS, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	N. Y.	N. J.	Tex.	Mass.	Ohio	Cal.	Va.	Misc. sources	Total all sources
January	81	1	.....	26	78	2	.....	24	212
February	87	.....	.....	19	96	.....	.....	44	246
March	197	.....	.....	41	78	6	.....	32	354
April	8	2	6	7	5	.....	.....	27	55
May	.....	1	202	1	.....	47	.....	34	285
June	.....	.....	300	.....	.....	97	.....	5	402
July	.....	272	2	.....	.....	1	2	6	283
August	2	149	1	46	.....	.....	76	14	288
September	126	85	.....	136	31	.....	38	178	594
October	156	7	.....	105	66	.....	2	112	448
November	159	2	.....	63	70	11	.....	123	428
December	111	1	.....	21	10	.....	.....	40	183
Totals	927	520	511	465	434	164	118	639	3,778

NOTE: One carload equals 27,000 lbs. Above figures exclude receipts by truck approximating 5,000,000 lbs.

TABLE XIII.

SWEET POTATOES, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	Va.	N. J.	Del.	Md.	Misc. sources	Total all sources
January	22	89	31	15	....	157
February	6	91	23	14	....	134
March	36	89	29	12	1	167
April	10	40	19	3	4	76
May	1	19	4	....	....	24
June	....	14	1	....	1	16
July	....	....	....	....	....	....
August	....	....	....	....	....	....
September	288	....	4	9	5	306
October	350	102	6	23	1	482
November	445	79	1	31	2	558
December	63	213	9	9	2	296
Totals	1,221	736	127	116	16	2,216

NOTE: One carload equals 30,000 lbs. Above figures exclude receipts by truck estimated at approximately 3,500,000 lbs.

TABLE XIV.

TOMATOES, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	Fla.	N. Y.	Misc.	Cal.	Md.	Tex.	Misc. sources	Totals all sources
January	64	......	......	......	......	......	15	79
February	95	......	......	......	......	......	15	110
March	311	......	......	......	......	......	18	329
April	145	......	......	......	......	......	3	148
May	130	......	......	......	......	......	1	131
June	392	......	164	......	1	23	6	586
July	11	322	90	......	38	25	48	534
August	......	400	......	......	11	......	13	424
September	......	176	......	......	......	......	32	208
October	......	151	......	64	3	......	19	237
November	......	13	......	39	......	......	3	55
December	17	......	......	16	......	......	......	33
Totals	1,165	1,062	254	119	53	48	173	2,874

NOTE: One carload equals about 20,000 lbs. Above figures exclude receipts by truck estimated at approximately 3,000,000 lbs.

TABLE XV.

CABBAGE, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	Fla.	N. Y.	S. C.	Va.	N. J.	La.	Cal.	Ala.	Misc. sources	Total all sources
January	17	82	.....	.....	.....	.....	10	.....	1	110
February	143	48	1	.....	.....	.....	5	.....	.....	197
March	316	38	.....	.....	1	.....	2	.....	3	360
April	436	6	10	.....	.....	.....	10	.....	.....	462
May	73	.....	216	11	.....	32	.....	25	28	385
June	.....	.....	101	199	16	.....	.....	1	3	320
July	.....	.....	.....	13	24	.....	.....	.....	.....	37
August	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
September	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
October	.....	35	.....	.....	.....	.....	.....	.....	.....	35
November	.....	177	.....	.....	1	.....	.....	.....	4	182
December	.....	100	.....	.....	.....	.....	.....	.....	2	102
Totals	985	486	328	223	43	32	27	26	41	2,191

NOTE: One carload equals about 24,250 lbs. Above figures exclude receipts by truck estimated at approximately 2,600,000 lbs.

TABLE XVI.

LETTUCE, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	Fla.	Cal.	N. Y.	N. J.	S. C.	N. C.	Misc. sources	Total all sources
January	377	21	......	......	......	......	......	398
February	296	78	......	......	......	......	8	382
March	175	237	......	2	1	......	44	459
April	67	40	......	1	100	11	6	225
May	3	68	......	6	113	108	14	312
June	......	12	6	41	......	1	3	63
July	......	......	80	17	......	......	2	99
August	......	......	124	......	......	......	......	124
September	......	......	139	8	......	......	......	147
October	......	4	49	94	......	......	2	149
November	39	36	......	83	......	3	20	181
December	402	129	......	1	......	......	6	538
Totals	1,359	625	398	253	214	123	105	3,077

NOTE: One carload equals 16,500 lbs. Above figures exclude receipts by truck estimated at approximately 2,500,000 lbs.

TABLE XVII.

CELERY, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	Fla.	N. Y.	Cal.	N. J.	Misc. sources	All sources
January	14	37	30	2	2	115
February	165	21	47	....	....	233
March	256	1	1	....	1	259
April	162	....	1	....	1	164
May	69	....	....	....	....	69
June	13	3	....	11	26	53
July	....	6	....	4	....	10
August	....	38	....	4	....	42
September	....	32	....	11	....	43
October	....	55	....	2	2	59
November	....	57	....	....	....	57
December	1	83	119	....	....	203
Totals	680	333	228	34	32	1,307

NOTE: One carload equals 13,500 lbs. Above figures exclude receipts by truck estimated at approximately 880,000 lbs.

TABLE XVIII.

PRIMARY SOURCES OF SUPPLY, PRINCIPAL FRUITS, YEAR 1920, BY MONTHS.

	Apples	Grapes	Cantaloupes	Pears	Peaches
January	Washington		California	Washington	
	Oregon			New York	
	New York			Oregon	
	Virginia			New Jersey	
	California			California	
	New Jersey				
	West Virginia				
February	New York.....			New Jersey	
	Oregon				
	Washington			New York	
	Virginia			California	
	New Jersey				
	California				
	West Virginia				
March	New York			New Jersey	
	Washington			California	
	Oregon			New York	
	Virginia			Washington	
	New Jersey				
	California				
	West Virginia				
April	Washington			New Jersey	
	Virginia			Washington	
	Oregon			New York	
	New York			Oregon	
	California				
	New Jersey				
May	New York				
	Washington				
	Virginia				
	Oregon				
	California				
	West Virginia				

TABLE XVIII — (*Concluded*)

	Apples	Grapes	Cantaloupes	Pears	Peaches
June............	New York Washington Virginia Oregon New Jersey California		California Georgia		Georgia California
July............	New Jersey New York Virginia Washington		California Georgia North Carolina Arizona Maryland		Georgia New Jersey California Virginia
August..........	New Jersey New York California Virginia Washington West Virginia		California Maryland Delaware North Carolina Arizona Georgia		New Jersey New York Virginia California
September.......	New York Virginia New Jersey California West Virginia Washington Oregon	California New York Pennsylvania	Colorado California Maryland Delaware	New York California Oregon Washington New Jersey	New Jersey New York Virginia California
October.........	New York Virginia Washington West Virginia Oregon New Jersey California	California New York Michigan Pennsylvania	Colorado California	New York California Washington New Jersey	New York New Jersey California
November.......	New York Washington Oregon Virginia New Jersey West Virginia California	California New York Pennsylvania	California Colorado	California New York Washington New Jersey	New York
December.......	New York Washington Virginia Oregon California New Jersey West Virginia	California	California	California Washington New York Oregon	

NOTE:— States are arranged in order of importance.

TABLE XIX.

APPLES, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	New York	Washington	Virginia	Oregon	New Jersey	West Virginia	California	Miscellaneous sources	Total all sources
January	262	278	59	238	38	2	14	105	996
February	281	165	105	201	10	10	10	58	840
March	367	316	114	223	26	4	15	60	1,125
April	32	106	50	32	2	......	7	12	241
May	107	86	68	62	.....	5	5	23	356
June	61	47	20	18	5	......	1	17	169
July	13	1	7	.....	96	......	......	109	226
August	116	6	8	.....	206	5	47	50	438
September	785	15	317	2	80	36	57	61	1,353
October	1,102	283	368	48	39	81	12	86	2,019
November	783	456	157	181	85	65	12	151	1,890
December	577	405	180	139	13	7	25	143	1,489
Totals	4,486	2,164	1,453	1,144	600	215	205	875	11,142

NOTE:—One carload equal to 30,000 pounds. Above figures exclude receipts by truck estimated at 5 per cent of total.

TABLE XX.

GRAPES, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	California	New York	Michigan	Pennsylvania	Miscellaneous sources	Total all sources
January	....	....	....	....	....	....
February	....	....	....	....	....	....
March	....	....	....	....	....	....
April	....	....	....	....	....	....
May	....	....	....	....	....	....
June	....	....	....	....	....	....
July	....	....	....	....	....	....
August	....	....	....	....	....	....
September	1,276	12	....	3	17	1,308
October	2,817	248	124	39	7	3,235
November	1,084	82	....	23	2	1,191
December	38	....	....	....	....	38
Totals	5,215	342	124	65	26	5,772

NOTE:— One carload equal to 22,500 pounds. Above figures exclude receipts by truck estimated at 5 per cent of total.

TABLE XXI.

CANTALOUPES, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	California	Colorado	Maryland	Delaware	North Carolina	Georgia	Arizona	Miscellaneous sources	Total all sources
January	2	.....	.....	.....	.....	.....	.....	.....	2
February	.....	.....	.....	.....	.....	.....	.....	.....	.....
March	.....	.....	.....	.....	.....	.....	.....	.....	.....
April	.....	.....	.....	.....	.....	.....	.....	.....	.....
May	.....	.....	.....	.....	.....	.....	.....	.....	.....
June	653	.....	.....	.....	.....	6	.....	14	673
July	723	.....	1	.....	109	110	86	13	1,042
August	387	.....	240	181	34	12	33	174	1,061
September	288	400	32	32	.....	.....	.....	135	887
October	86	150	.....	.....	.....	.....	.....	.....	236
November	68	2	.....	.....	.....	.....	.....	.....	70
December	9	.....	.....	.....	.....	.....	.....	.....	9
Totals	2,216	552	273	213	143	128	119	336	3,980

NOTE:— One carload equal to 20,250 pounds.

TABLE XXII

PEARS, RECEIPTS IN CARLOADS AND BY SOURCES OF SUPPLY AT NEW YORK PORT DISTRICT, 1920.

	New York	California	Washington	Oregon	New Jersey	Miscellaneous sources	Total all sources
January	4	2	29	4	4	5	48
February	3	2	18	.....	9	4	36
March	10	11	4	.....	12	1	38
April	1	.....	2	1	4	1	9
May	.....	.....	.....	.....	.....	.....	.....
June	.....	.....	.....	.....	.....	.....	.....
July	.....	.....	.....	.....	.....	.....	.....
August	.....	.....	.....	.....	.....	.....	.....
September	266	260	45	90	21	42	724
October	326	209	78	.....	42	26	681
November	88	101	72	.....	10	10	281
December	35	53	36	14	.....	5	143
Totals	733	638	284	109	102	94	1,960

NOTE:— One carload equal to 27,500 pounds. Receipts by truck not included in above figures' estimated at 5 per cent of total.

TABLE XXIII.

Peaches, Receipts in Carloads and by Sourcfs of Supply at New York Port District, 1920.

	Georgia	New Jersey	New York	Virginia	California	Miscellaneous sources	Total all sources
January	......	......	......	......	......	......	....
February	......	......	......	......	......	......	....
March	......	......	......	......	......	......	....
April	......	......	......	......	......	......	....
May	......	......	......	......	......	......	....
June	433	......	......	......	2	4	439
July	976	45	......	3	4	24	1,052
August	154	391	......	90	79	119	833
September	......	454	328	16	7	40	845
October	......	3	293	......	3	1	300
November	......	......	2	......	......	......	2
December	......	......	......	......	......	......	....
Totals	1,563	893	623	109	95	188	3,471

Note:— One carload equal to 25,000 pounds. Receipts by truck not include in above figure, estimated at 5 per cent of total.

TABLE XXIV

EGGS

Receipts, in cases (30 dozen to the case), at New York Port District, 1920

	Ill.	Iowa	Ind.	Ohio	Mo.	N. Y.	Cal.	Tenn.	Kan.	Pa.	Ky.	Tex.	Mich.	Misc. sources	Total all sources
January	27,101	9,887	13,481	5,814	18,785	29,242	5,019	27,702	8,872	7,858	4,996	4,135	3,183	40,961	207,036
February	63,405	13,753	14,942	7,918	29,078	15,070	33,981	42,649	17,683	7,200	11,892	10,463	1,683	45,693	315,410
March	106,933	31,864	52,589	23,087	60,417	24,812	62,054	79,552	33,405	12,537	22,643	30,054	2,438	76,011	618,396
April	113,929	51,998	77,322	40,864	34,864	16,608	25,003	68,750	21,607	7,238	20,483	30,685	3,857	49,323	562,531
May	197,875	92,533	121,971	90,814	70,105	56,949	16,286	23,922	17,726	23,912	20,996	11,462	12,294	73,245	830,090
June	196,254	114,374	99,302	65,696	36,512	51,710	21,764	5,656	9,660	17,246	7,873	2,887	12,749	83,735	725,418
July	101,163	97,242	49,355	37,334	31,310	30,486	35,370	4,524	8,868	12,736	1,571	....	3,351	56,328	469,638
August	84,491	55,535	35,261	37,377	24,027	33,744	24,615	3,270	7,550	11,443	607	....	5,313	47,256	370,489
September	73,244	58,319	31,881	49,830	23,230	18,634	18,413	687	10,086	8,433	1,242	....	3,813	36,615	334,427
October	55,915	39,508	20,925	33,657	26,672	13,887	22,811	12,746	8,940	4,022	5,725	....	1,832	25,084	271,724
November	49,888	21,242	17,446	9,276	19,684	10,387	13,187	19,845	2,904	2,629	5,248	....	719	36,219	208,674
December	36,242	9,988	8,257	1,577	20,585	12,063	27,386	14,821	5,266	2,553	4,012	....	....	67,786	210,536
Totals	1,106,440	596,243	542,732	403,244	395,269	313,592	305,889	304,124	152,567	117,807	107,288	89,686	51,232	638,256	5,124,369

TABLE XXV.

LIVE AND DRESSED POULTRY, RECEIPTS (IN POUNDS) AT NEW YORK PORT DISTRICT, 1920.

	Live poultry	Dressed poultry
January	11,174,000	11,217,443
February	10,286,000	7,557,053
March	12,968,500	3,928,311
April	8,824,500	1,461,915
May	10,563,500	5,739,048
June	11,840,000	5,032,796
July	11,803,000	6,129,040
August	13,283,000	4,428,651
September	18,204,000	6,272,691
October	14,430,000	6,744,993
November	15,965,500	17,650,816
December	17,057,000	25,129,376
Totals	156,399,000	101,292,133

TABLE XXVI.

COFFEE, SUGAR, TEA, RECEIPTS (IN POUNDS) ANNUALLY AT NEW YORK PORT DISTRICT, BASED ON FISCAL YEAR, 1920–1921.

	Coffee	Sugar,* year 1920	Tea, year 1920
January, 1921	77,072,190	361,020,000	....
February, 1921	89,492,780	505,008,000	....
March, 1921	74,367,280	480,648,000	No
April, 1921	81,431,870	522,632,320	
May, 1921	57,237,570	360,899,840	
June, 1921	48,289,670	450,764,160	Information
July, 1920	61,872,980	659,211,840	
August, 1920	59,787,260	487,690,560	
September, 1920	67,149,810	142,889,600	
October, 1920	57,735,080	208,725,440	Available.
November, 1920	33,387,510	320,781,440	....
December, 1920	40,110,460	214,155,040	....
Total receipts, 1920–1921	747,934,460	4,714,426,240	75,000,000
Estimated consumption	119,880,000	692,240,000	25,000,000

* Receipts are in raw sugar, 100 lbs. of which averages about 93 lbs. refined sugar. All information obtained from Willett and Gray.

TABLE XXVII.

DRIED FRUITS AND NUTS,* ESTIMATED RECEIPTS (IN POUNDS)† AT NEW YORK PORT DISTRICT, 1920.

	Prunes	Raisins	Peaches	Apricots	Apples	Figs	Almonds	Walnuts
January to March	4,000	6,500	1,500	250	250	250	300	600
April to June	3,200	5,200	1,200	200	200	200	300	600
July to September	2,400	3,900	900	150	150	150	150	300
October to December	6,400	10,400	2,400	400	400	400	750	1,500
Total receipts or consumption	16,000	26,000	6,000	1,000	1,000	1,000	1,500	3,000

Total fruits	51,000,000 pounds
Total nuts	4,500,000 pounds

* Receipts given in thousands of pounds, except for final totals.

† Receipts estimated by member, Commodities Committee in conjunction with California Dried Fruit Association.

APPENDIX B.

SUPPLEMENTAL DATA REGARDING FAMILY BUDGET STUDIES.

APPENDIX B.

Supplemental Data Regarding Family Budget Studies.

There follows herein an explanation in detail of procedure followed in estimating food requirements for the Port District population as described in Section III of this report beginning on page 29.

The problem was to find a multiplier which would represent The Port of New York District in terms of consumptive units and a multiplicand which would be a fair estimate of the amount of food consumed per unit.

To derive the number of consumptive units it was necessary to adjust the population figure for age and sex as explained heretofore.

Several scales for making this adjustment have been computed by experts both in the United States and Europe. In general they are based on the energy (calorific) requirements of broad age groups of each sex, stated in terms of an adult male. Of these the two scales published by the United States Government offices, the Department of Agriculture (Atwater) and the Bureau of Labor Statistics, were chosen.

To these well-known government scales was added for comparison a new and differently constructed table just published by Edgar Sydenstricker and Willford King, embodying the results of a study of 1,500 family budgets, collected in 1917 from the residents of 20 cotton mill villages of South Carolina.*

The investigation by Messrs. Sydenstricker and King was a budget rather than a dietary investigation and expresses relative percentage expended on persons of every age, male and female, in terms of the unit of maximum expenditure for food. This unit of maximum expenditure was found to be that expended for males from 22 to 42 years of age. Since no term could be found to express this unit, a new one, *fammain,* was coined by the authors. A fammain (food for adult male maintenance) is defined for any given class of people as "a demand for food of a money value equal to that demanded by the average male in the given class at the age when the expense for his food reaches

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*** Quarterly publication of the American Statistical Association, September, 1921, page 849.**

a maximum." A full explanation of the procedure in obtaining this ingenious scale can be found in the publication cited.

The investigators, using the Atwater scale as a base, adjusted and readjusted for sex and age in conformity with the data obtained from the actual survey. Since the resulting scale is based on actual relative expenditures rather than on calories, it gives a valuable check on the other tables.

In order to apply any of these scales to our problem, it is first necessary to determine the age distribution of the Port District population. No census figures cover the Port District as such, but the census of 1910 shows that there is little variation between the New York City and the New Jersey urban population, particularly in those ages under 20 which are most significant.

TABLE I.

COMPARATIVE AGE DISTRIBUTION OF NEW YORK CITY AND NEW JERSEY STATE URBAN POPULATION.

AGE	MALE		FEMALE	
	New York City	New Jersey State urban	New York City	New Jersey State urban
Under 5	10.7	10.8	10.5	10.7
5–9	9.2	9.5	9.2	9.6
10–14	8.8	8.9	8.9	9.1
15–19	9.1	9.0	10.1	9.9
20–24	10.5	10.0	11.8	10.5
25–34	19.8	18.8	18.8	17.8
35–44	15.1	15.4	14.0	14.0
45–64	14.0	14.6	13.6	14.4
65 and over	2.7	3.2	3.2	3.9

Since the inhabitants of New York City comprise nearly three-fourths of the Port population, and since the variation in age distribution is so insignificant we may feel safe in applying the scales to the New York City figures.

When the Sydenstricker-King scale is applied to the New York City age distribution and the values computed we find that there are approximately 78 equivalent males to every hundred population.

This is shown in Table II.

TABLE II.

APPLICATION OF THE SYDENSTRICKER AND KING FAMMAIN SCALE TO THE POPULATION OF NEW YORK CITY.

Male				Female		
Number of equivalent adult, males	Fammain value	Percentage distribution of New York City population (1910 census)	Age	Percentage distribution of New York City population (1910 census)	Fammain value	Number of equivalent adult, males
.32248	.278	1.16	Under 1	1.14	.265	.30210
.30804	.302	1.02	1	1.00	.289	.28900
.38628	.348	1.11	2	1.09	.335	.36515
.40386	.381	1.06	3	1.05	.371	.38955
.40180	.410	.98	4	.97	.403	.39091
.41325	.435	.95	5	.94	.427	.40138
.43240	.460	.94	6	.95	.447	.42465
.44919	.483	.93	7	.92	.463	.42596
.44528	.506	.88	8	.90	.478	.43020
.46197	.531	.87	9	.86	.492	.42312
.49573	.557	.89	10	.90	.517	.46530
.49136	.592	.83	11	.83	.541	.44903
.58188	.639	.92	12	.93	.576	.53568
.61072	.694	.88	13	.88	.615	.54120
.66903	.769	.87	14	.87	.660	.57420
.66960	.837	.80	15	.84	.715	.60060
.89100	.900	.99	16	.98	.760	.74480
.83215	.935	.89	17	.97	.795	.77115
.93605	.965	.97	18	1.16	.820	.95120
.92402	.983	.94	19	1.10	.835	.91850
.98109	.991	.99	20	1.20	.845	1.01400
1.01796	.998	1.02	21	1.06	.853	.90418
20.69000	1.000	20.69	22–44	20.04	.858	17.19432
2.66760	.988	2.70	45–49	2.50	.845	2.11250
1.99465	.973	2.05	50–54	1.95	.830	1.61850
1.24150	.955	1.50	55–59	1.30	.815	1.05950
.89320	.940	0.95	60–64	1.05	.800	.84000
1.21340	.918	1,30	65 and over	1.50	.778	1.17700
41.82849						36.31418
36.31418						
78.14267	Equivalent adult males per hundred population.					

The Atwater Table yields the same result (Table III). The Bureau of Labor Statistics (Table IV) scale gives a slightly higher number, 82 per hundred, but as the Labor table appears to be the least refined of the three tables, we may reject this member in favor of the other. The reliability of the 78 per hundred figures seems more certain in view of the coincidence of the Atwater result (based on calories) and the Sydenstricker-King result (based on fammains).

TABLE III.

ATWATER SCALE.

Male				Female		
Number of equivalent adult, males	Factor value	Percentage distribution of New York City population (1910 census)	Age	Percentage distribution of New York City population (1910 census)	Factor value	Number of equivalent adult, males
.6540	.30	2.18	Under 2	2.14	.30	.6420
1.6400	.40	4.10	2–5	4.05	.40	1.6200
1.8100	.50	3.62	6–9	3.63	.50	1.8150
1.0320	.60	1.72	10–11	2.66	.60	1.5960
.6440	.70	.92	12	....	....	....
1.4000	.80	11.75	13–14	1.75	.70	1.2250
1.6110	.90	1.79	15–16	1.82	.80	1.4560
33.8000	1.00	33.80	Over 16	33.83	.80	27.0640
42.5910						35.4180
35.4180						
78.0090	or 78 Equivalent adult males per hundred population.					

TABE IV.

BUREAU OF LABOR STATISTICS SCALE.

Male				Female		
Number of equivalent adult, males	Factor value	Percentage distribution of New York City population (1910 census)	Age	Percentage distribution of New York City population (1910 census)	Factor value	Number of equivalent adult, males
.6525	.15	4.35	Under 4	4.28	.15	.6430
1.1480	.40	2.87	4–6	2.86	.40	1.1440
2.6775	.75	3.57	7–10	3.58	.75	2.3850
3.1500	.90	3.50	11–14	3.51	.90	3.1590
35.5900	1.00	35.59	15 and over	35.65	.90	32.0850
43.2180						39.4150
39.4150						
82.6330	Equivalent adult males per hundred population.					

Multiplying 8,000,000, the population of the Port District in round numbers, according to the 1920 census, by 78 per cent gives a product of 6,240,000 equivalent adult males. This figure may be regarded as *the multiplier.*

The Multiplicand.

The multiplicand must necessarily be an estimate of per equivalent male consumption. For ascertaining this quantity we have the help of two governmental and two private investigations.

The Bureau of Labor Statistics conducted several quantity budget studies during the period of the European war in connection with cost of living surveys. A complete report of the results of the surveys has not yet been published but special articles covering portions have appeared from time to time. In 1918 the Bureau collected budgets from 608 families in the New York Shipyard District and the tabulated average per man per year consumption of certain commodities shown therein was published.*

Throughout 1918–19 the Bureau conducted a nationwide survey, covering 92 urban communities and nearly 13,000 families. The families chosen were those of wage earners or salaried workers; English-speaking and self-supporting. Two tabulations from this survey are used for comparison. One is the average consumption per man obtained from compilation of nearly 4,000 family budgets in 22 cities of the North Atlantic section. The other shows the same data for a selected group of New York City families, those composed of approximately 3.35 equivalent adult males, with a total average annual expenditure of $1,300–$1,500 a year, and showing dietaries yielding about 3,400 to 3,500 calories per man per day.†

Another government agency, the office of Home Economics of the Department of Agriculture has been engaged for years in making local dietary studies, but during the war it broadened the scope of its surveys to include some 1,700 families in 41 states. The full report of this investigation has not been published either, but partial tabulation of 500 of the schedules gives sufficient results for comparison.

In addition to the extensive Government surveys, two private investigations, the well-known one by Chapin‡ in 1909 and an excellent but less familiar dietary study by Dr. H. C. Sherman and L. H. Gillett for the New York Association for Improving the Condition of the Poor have been used.*

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* Monthly Labor Review, Vol. VII No. 6, Dec. 1918.

† Monthly Labor Review, (Aug. 1919: Table 9, p. 22).

‡ Standards of Living in New York City 1909: R. C. Chapin.

A tabular comparison of the per man per year consumption estimates of these six studies is shown in Table V.

The technical methods of computing the per equivalent male consumption is practically the same in all the studies. It consists of dividing total quantity by estimated number of equivalent adult males, reckoned on the basis of the scales mentioned above. For a given group of people, the number of Bureau of Labor Statistics equivalent adult units will be found to be slightly higher than the number of Atwater units. Accordingly, the figures for the labor investigations have been raised slightly.

In all probability, the excellence of the original data varies inversely with the scope of the investigation. The more intensive studies, particularly the Sherman-Gillett study contain less introspective estimation on the part of the housewives and more objective measurement on the part of the investigator. On the other hand, the Government surveys give a much larger group in which individual variations are likely to be smoothed out by the average. All of the studies may be said to be fairly representative of various occupational and racial groups although the Bureau of Labor and Chapin studies tend to be confined to wage earners and salaried people. The Department of Agriculture report lists 16 national stocks and 16 different occupations, some of the latter being of the better paid class. The Sherman-Gillett study shows 10 nationalities and is assumed "to be fairly representative of social groups."

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* The Adequacy and Economy of some city dietaries 1917, H. C. Sherman and L. H. Gillett.

TABLE V

COMPARATIVE ESTIMATES OF AVERAGE ANNUAL CONSUMPTION PER EQUIVALENT ADULT MALE (POUNDS)

ITEM	BUREAU OF LABOR STATISTICS			DEPARTMENT OF AGRICULTURE	SHERMAN AND GILLETTE	CHAPIN	Range of estimate	Selected estimate
	New York shipyard district Survey 1918	Cost of living Survey *1919* Average of North Atlantic section	Cost of living *Survey* selected New York families *1919*	Office of home Economics 1919	Adequacy of some city dietaries 1914–15	Standards of living in New York City 1909		
Total meat (including provisions and poultry)	127	(*80)	130	112	169	155	112–169	155
Beef and veal	71	(*44)	.....	.....	92	86	71– 92	85
Pork	34	(*22)	.....	.....	33	.....	33– 34	33
Lamb and mutton	14	(*4)	.....	.....	23	.....	14– 23	16
Fowl	9	8	.....	.....	21	16	8– 21	21
Fish	.....	.....	25	(18)	28	.....	25– 28	26
Milk (whole sweet)	205	277	(514)	300	235	*281	205–300	277
Cheese	5	4	.....	(20)	7	7–8	4– 8	6
Eggs	29	30	.....	32	31	(†24)	29– 32	30
Total fats (including butter)	39	38	40	37	32	.....	32– 40	38
Total cereals and breadstuffs	305	319	352	292	295	(449)	292–352	300
Rice	13	10	.....	.....	.....	4	4– 13	10
Bread	194	200	.....	.....	187	(320)	187–200	194
Flour (wheat)	76	70	.....	.....	.....	30	30– 76	70
Total vegetables (including canned and dried)	.....	.....	333	343	324	.....	324–343	333
Total fruits (including canned and dried)	.....	.....	78	(189)	162	.....	78–162	120
Sugar	55	44	55	70	67	48	44 –67	55
Coffee and tea	.....	15	.....	.....	13	19	13 –19	15

* Incomplete. † Average of six actual budgets presented.

With studies made for such different purposes and varying so in scope, size and method, it is not surprising to find considerable variation in the results. However, some approximate conclusions are possible. One is struck by the concurrence of estimate on eggs, total fats (butter, oleomargarine, lard, crisco, etc.), and total vegetables. For the rest, we can eliminate some of the figures rather arbitrarily because of their incompleteness (as shown on the original tabulation) and their unrepresentative quality (as in the countrywide figures for fruits and cheese shown by the Department of Agriculture, and the figures for bread in the Chapin study).

After discarding the inapplicable figures, which are bracketed, the range of estimate and a selected figure, which seems by experience to represent the most likely amount, are shown in columns 7 and 8 of Table V.

In some commodities the range is slight; others vary greatly. Our confidence in any one figure will probably be diminished as the dispersion increases, but somewhere within the extreme is the multiplicand we seek.

If we multiply the high, low and selected figures for per man per annum consumption by the 6,240,000 equivalent adult males we can get an estimate or rather three estimates of the total annual consumption in Table VI.

TABLE VI

Estimated Total Annual Consumption of Certain Foodstuffs in the Port of New York District.

(All Quantities in Pounds)

	Low	High	Selected
Total meat (including provisions and poultry)	698,880,000	1,054,560,000	967,200,000
Beef and veal	443,040,000	574,080,000	530,400,000
Pork	205,920,000	212,160,000	205,920,000
Lamb and mutton	97,360,000	143,520,000	99,840,000
Fowl	49,920,000	131,040,000	131,040,000
Fish	156,000,000	174,720,000	162,240,000
Milk (fresh sweet)	1,279,200,000	1,872,000,000	1,728,480,000
Cheese	24,960,000	49,920,000	37,440,000
Eggs	180,960,000	199,680,000	187,200,000
Total fats, including butter	199,680,000	249,600,000	237,120,000
Total cereals and breadstuffs	1,822,080,000	2,196,480,000	1,872,000,000
Rice	24,960,000	81,120,000	62,400,000
Bread	1,106,880,000	1,248,000,000	1,200,560,000
Flour (wheat)	187,200,000	474,240,000	436,800,000
Total vegetables (including canned and dried)	2,021,760,000	2,140,320,000	2,077,920,000
Total fruits (including canned and dried)	486,720,000	1,010,800,000	748,800,000
Sugar	274,560,000	418,080,000	343,200,000
Tea and coffee	81,120,000	118,360,000	93,600,000
Total	7,225,920,000	9,484,520,000	8,455,200,000

To test the validity of these estimates in order that we may discard those that are too high or too low, we can compare them with the calculated net receipts of foodstuffs brought in by rail, water and truck in 1920. These comparisons are made in Tables VII, VIII and IX.

TABLE VII

COMPARISON OF EXTREME LOW BUDGET ESTIMATES.

(All Quantities in Pounds)

ITEM	Low budget estimate	Calculated net receipts — 1920
Total meat (including provisions and poultry)	698,880,000	1,072,240,000
Milk (fresh sweet)	1,279,200,000	2,101,673,000
Dairy products (butter, cheese and eggs)	336,960,000	419,008,000
Total cereals and breadstuffs	1,822,080,000	1,706,017,000
Total fruits and vegetables (including canned and dried)	2,508,480,000	2,321,072,000

A glance at this table shows that the low budget estimate for total meat is more than 300,000,000 pounds below the calculated net receipts figure. It is a known fact that there is a heavy consumption of meat, particularly poultry, in the Port District (see Sherman-Gillette survey figure Table V). The conclusion that the low budget estimate is not representative seems inevitable.

Since nearly all of the fresh milk received in the district is consumed locally in its fluid form, we should expect the correct budget figure to be several hundred million pounds nearer net receipts.

The low estimates for cereals and fruits and vegetables exceed the calculated net receipts. This is to be expected from the fact that the categories vary in their inclusiveness. In the case of cereals, the budget estimate takes in oatmeal, cornmeal, macaroni, breakfast foods, in fact all of the miscellaneous cereal products, while the net receipts figure includes only the principal staples. Likewise, fruit and vegetable consumption includes canned as well as fresh and dried, while net receipts has to stop at fresh and dried. This difference should be remembered in making all comparisons.

TABLE VIII

COMPARISON OF HIGH BUDGET ESTIMATES WITH 1920 NET RECEIPTS

(All Quantities in Pounds)

ITEM	High budget estimates	Calculated net receipts — 1920
Total meat (including provisions and poultry).....	1,054,560,000	1,072,240,000
Milk (fresh sweet)............................	1,872,000,000	2,101,673,000
Dairy products (butter, cheese and eggs).........	393,120,000	419,008,000
Total cereals and breadstuffs....................	2,196,488,000	1,706,017,000
Total fruits and vegetables (including canned and dried)....................................	3,151,200,000	2,321,072,000

It will be seen that the high budget estimates on meat, milk and dairy products run close to the calculated net receipts. So close, in fact, is the correspondence in the case of meat and dairy products that one may well question whether the margin between them is sufficient to account for minor sources of extra consumption such as provisioning of ships, truck deliveries out of Port District, and the like.

The cereal and fruit and vegetable high estimates seem excessive even when we recall that minor cereals and canned fruits and vegetables are included.

TABLE IX

COMPARISON OF SELECTED BUDGET ESTIMATE WITH RAIL SURPLUS 1914 AND 1920 GROSS RECEIPTS

(All Quantities in Pounds)

ITEM	Selected budget estimates	Calculated net receipts — 1920
Total meat (including provisions and poultry).....	967,200,000	1,072,240,000
Milk (fresh sweet)............................	1,727,480,000	2,101,673,000
Dairy products (butter, cheese and eggs).........	368,100,000	419,008,000
Total cereals and breadstuffs....................	1,872,000,000	1,706,017,000
Total fruits and vegetables (including canned and dried)....................................	2,826,720,000	2,321,072,000

In Table IX we find that the selected budget figures, chosen by comparison of actual per equivalent adult male consumption data, is in general concurrence in all comparable items with the 1920 calculated net. These estimates appear to indicate the actual food requirements of the 8,000,000 inhabitants of the Port District. It should be remembered that the requirements of the transient population and of ships provisioned in the port are not included. To add an estimate for these items would not only be difficult but also of questionable value for many duplicating and counterbalancing factors are present.